Module 1: Abdominal Pain Case – Mr. Smith

Date Created: November 2006 (case adapted for high fidelity medical simulation from SAEM Geriatric Task Force Cases originally developed in 2005 by the Geriatric Interest Group of SAEM)

Target Audience: Emergency Medicine Residents PGY 1-4 Medical Students

Objectives:
1. Demonstrate the use of the domain management geriatric emergency care model (DMM)
2. Demonstrate the use of the Identification of Seniors at Risk (ISAR) Questionnaire
3. Communicate with PCP, geriatricians, and case management using the DMM
4. Identify priorities in the initial triage of the elderly patient with abdominal pain.
5. Understand the possible confounding factors in obtaining an accurate history for the geriatric patient
6. Describe the appropriate physical examination and the potential confounding factors in this assessment.
7. Recognize the limitations of diagnostic testing in elderly patients with abdominal pain.
8. Describe the presentation and approach to the patient with a ruptured abdominal aortic aneurysm.
9. Describe the presentation of acute mesenteric ischemia in the elderly
10. Describe the presentation of acute appendicitis in the elderly

Core Competency Objectives (see Critical Actions Checklist)
1. Medical knowledge
2. Patient Care
3. Interpersonal and Communication skills
4. Systems based practice
5. Professionalism
6. Practice based learning

Readings & Assignments:


Environment and Equipment
Level 1 Trauma Center
Ultrasound machine/prop
Male street clothes

Personnel:
◦ Patient/mannequin operator – 70 year old male
◦ Patient’s wife
◦ Surgical consultant
◦ Nurse

Case Summary:
Focus is on the evaluation of abdominal pain in a 70 year old male who presents with abdominal pain. The patient eventually is found to have appendicitis but the presentation is confusing and requires an approach to undifferentiated abdominal pain.

Case Narrative:
A 70 year old man is brought to the triage area of the emergency department by his wife. Mrs. Smith reports that her husband complained of abdominal pain in the bathroom and then came to
lie back down in bed. She found her lying in bed moaning and drove him to the hospital because he would not let him call an ambulance, complaining that, “it’s just some constipation”. When asked, the patient reports straining on the toilet and feeling lightheaded and then went back to lie down on the floor. He currently has some abdominal discomfort and bloating. The wife reports that he was conscious when she found him in bed. He was not incontinent or confused. The abdominal pain is located mainly to the middle or lower abdomen. No chest pain or dyspnea is reported.

**Past Medical History:** Hypertension, CHF, hernia repair

**Medications:** digoxin, lasix

**Allergies:** Penicillin

**Social and Family History:** Drinks 2-3 drinks daily for 10 years, quit smoking one week ago

**Physical Exam:**
- Appearance: Pale, thin, diaphoretic
- Vital signs: BP 96/70, P 110, R 22, T37
- HEENT: normal exam, pale appearing
- CHEST: normal exam
- Abdomen: Mild tenderness throughout the abdomen but somewhat greater in lower abdomen. There is no rigidity but some voluntary guarding in lower abdomen. Aorta is non tender and normal in size.
- GU: No hernias, femoral pulses and rectal exam are normal
- Extremities: normal
- Neurologic: normal

**Laboratory Values:**
- WBC count 9.8 with 11% bands
- Chemistries, LFT, lipase and UA are normal

**Imaging Studies:**
- Plain radiographs with nonspecific bowel patterns
- Ultrasound with normal caliber aorta
- CT scan with appendicitis
- EKG with sinus tachycardia
- Normal CXR (male)

**Scenario Flow of the Case:**
**Prescenario:** Patient is wheeled into triage in wheelchair, physician asked to evaluate

**Time 0:** Patient triaged to critical care

**2 minutes:** Brief history taken, immediate interventions including IV, O2, monitor and EKG should be initiated. Wife becomes available for more history once patient is on monitor and vital signs are noted.

**5 minutes:** Mr. Smith has been placed on a stretcher and placed on a monitored bed. The EKG shows sinus tachycardia. A large bore IV line is successfully placed and isotonic crystalloid is initiated. Mr. Smith nearly passes out when an attempt is made to obtain orthostatic vital signs or when he is sat up in the stretcher.

**8-10 minutes:** Further history should be obtained regarding time and nature of pain, back pain, exam should be conducted to evaluate abdominal aorta. Immediate bedside ultrasound should be performed and will show a normal aorta and no free fluid.
10 minutes: After receiving 500cc of crystalloid his color improves. EKG should be read as sinus tachycardia with no acute ischemic changes. Abdominal ultrasound shows a normal aorta and no free fluid. BP 118/72, P 100. Further history reveals that the abdominal pain came on suddenly but has been present for 4 days and has been steadily worsening. It is mainly in the lower abdomen and is somewhat worse on the right side. He rates the pain as 7 on a scale from 1 to 10. There is no migration, radiation or prior episodes. The bumps on the car ride made the pain worse. He vomited once earlier in the day. He reports having an appetite but when pressed admits to limited oral intake. There were two loose stools yesterday and no genitourinary symptoms. He has been unable to do much during the past 2 days other than get to the bathroom. The patient will insist he is feeling better and would like to go home.

Interrupt case to elicit participant’s current differential diagnosis and supporting evidence

15 minutes: Lab values and imaging studies return. Patient feels warm and nurse retakes her temperature which is now 102 F. Repeat WBC count if sent is 16. Again interrupt to obtain differential and current thinking. CT ordered and results given. When patient is taken to OR she is found to have gangrenous appendix. Participants should review options for patient disposition after the surgery with the patient’s concerned wife.
I. Medical/Surgical Issues

**Discussion points:**

- **What signs in initial assessment made him an urgent patient?** Remember to get a set of full vital signs, patients are often normothermic or hypothermic, meds may blunt tachycardia, normal BP may indicate hypotension.

- **What further history is important once the patient is stabilized? Is there anything about his past medical history that makes you consider particular diagnoses?** The presence of digoxin on a med list should make you consider afib and therefore ischemic bowe since afib is the most common cause, CHF is often a cause of low flow mesenteric ischemia. The patient drinks alcohol. % of elderly patients drink alcohol. It is important to directly inquire about their social history.

- **What diagnosis can you make with a plain film in a patient with abdominal pain?** Cecal or sigmoid volvulus, emphysematous cholecystitis, calcified aortic aneurysm, free air

- **What was your differential, weight the evidence for or against each diagnosis?** Vascular catastrophe should be at the top of your differential diagnosis of any patient who presents with hypotension and abdominal pain because there is a very small window for intervention. Pancreatitis is the most common nonsurgical condition in the elderly, the in incidence increases 200 fold after the age of 65 and mortality approaches 40%. 10% present just as hypotension and altered mental status. Diverticular disease increases with every generation with nearly 80% after age 85.

- **What if CT scan was negative, what instructions would you give with discharge? Would you discharge patient? What are some other options?** Patients selected for discharge should have a repeat abdominal exam documented, have improvement in their clinical course, have a normal imaging study and be able to tolerate oral nutrition. They should have a reliable caretaker and a timely follow up evaluation.

**Teaching points:**

- **The patient’s presentation is often complex** – The elderly abdominal pain patient consumes more time and resources than any other emergency department (ED) patient presentation. Length of stay is 20% longer, admitted 50% time, surgery 30% of the time. 30% of those discharged return. Elderly patients account for 50% of deaths from appendicitis and have a mortality rate of 5-10% and perforation rate of 70%. Initial diagnosis is incorrect in 50% of cases, and 1 out of 5 present 3 days after symptoms start, 1 out of 15 present one week after symptoms start.

- **Common diseases present atypically** More susceptible to infection: t cell function declines, alterations in physical barriers to infection so present later, decreased hearing and memory make history taking difficult. Lack of abdominal musculature reduces rigidity and guarding on exam.

- **Co morbid disease may have confounding effects** Medications mask pathology and can also cause pathology. Digoxin, colchicines, antibiotics and metformin can cause abdominal pain. Steroid medications increase ulcer risk and decrease pain sensation. Beta blockers blunt expected tachycardia. Afib is a cause of ischemic bowel.

Always consider nonabdominal sources of pain: pneumonia, CHF, pericarditis, or PE.

- **Norms for lab values may be different** 25% of patients with appendicitis have a normal WBC.

- **Subtle signs on physical exam should not be overlooked** CT scan altered initial diagnosis in 45% cases of abdominal pain in a 2004 study. Changed the admit
decision in 25%, and doubled the diagnostic certainty of the treating EP.

### II. Mental Status/Emotions/Coping

#### Discussion points
- **What are confounding factors in obtaining an accurate history in the elderly patient with abdominal pain?**
  (stoicism, reluctance to report symptoms, altered pain perception, memory deficits, communication problems, and mental status changes)

This patient has a drinking problem which will confound any underlying cognitive impairment. It also shows poor coping and psychosocial adjustment.

#### Teaching points
- Recognition of the possibility for cognitive impairment is important
- Health problems must be evaluated for associated psychosocial adjustment
- History can be complicated by under reporting of symptoms or altered perception of pain

### III. Physical Functioning

- The likelihood of decreased functional research must be anticipated
- A knowledge of baseline functional status is essential for evaluating new complaints

### IV. Living Environment

- Social support systems may not be adequate, and patients may need to rely on caregivers
- The emergency department encounter is an opportunity to assess important conditions in the patient’s personal life
### Critical Actions Checklist

<table>
<thead>
<tr>
<th>Critical Action</th>
<th>Yes</th>
<th>No</th>
<th>Time</th>
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<tbody>
<tr>
<td>1 Assures appropriate triage to critical care</td>
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<td>2 Immediate interventions (IV, O2, monitor)</td>
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<td>3 Acknowledges abnormal vital signs</td>
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<td>4 Obtains history from wife and patient, obtains ETOH history</td>
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<td>5 Obtains EKG</td>
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<td>6 Immediate bedside ultrasound</td>
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<td>7 Obtains a temperature</td>
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<tr>
<td>8 Treats patients pain</td>
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<td>9 Orders appropriate labs and imaging</td>
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<td>10 Orders blood cultures</td>
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<td>11 Early surgical consultation</td>
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<td>12 Talks to wife about likely disposition after surgery</td>
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### RIHMSC Global Competency Scale

<table>
<thead>
<tr>
<th>Category</th>
<th>Scale</th>
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<tbody>
<tr>
<td>Immediate critical EM actions</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Appropriately targeted H&amp;P</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Recognizes &amp; manages disease process</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Considers differential diagnosis</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Communication skills</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Case synthesis</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Degree of expertise &amp; leadership</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Crisis management behaviors/Teamwork</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Safety Behaviors</td>
<td>1 2 3 4 5 6 7</td>
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Resident Name: _________________________________
Examiner: _________________________________
Case Title: _________________________________
Scenario Type: Single Patient [ ] Multiple Patient [ ]
### Description of Elements in RIH MSC Global Rating Scale

<table>
<thead>
<tr>
<th>No</th>
<th>Competency</th>
<th>Descriptor</th>
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</table>
| 1  | Immediate emergency medicine actions | - IV, O2, Monitor  
- Immediate stabilization dependent on case |
| 2  | Appropriately targeted history/physical exam | - History and physical based on case |
| 2  | Recognizes & manages disease process | - Completes all critical actions based on checklist in appropriate sequence and timeframe |
| 3  | Considers differential dx | - Avoids premature diagnostic closure |
| 4  | Presentation skills/interpersonal relations | - Quality of verbal presentation (assessment-oriented)\(^1\) = data content, expression, organization of medical decision making, overall presentation – (AO format = patient ID, assessment & mgmt/therapeutic plan, limited justification based on H&P)  
- Respectful interaction with patient  
- Works effectively with ED staff |
| 5  | Case synthesis/Cognition | - Recognizes diagnosis  
- Appropriately dispositions patient  
- Obtains all appropriate consults/follow-ups  
- Recognizes unresolved issues  
- Avoids common cognitive errors\(^2\) |
| 6  | Degree of Expertise/Leadership\(^3\) | - Fluency: does the activity run together in an integrated and uninterrupted sequence with a minimum of pauses/ hesitations.  
- Automaticity: can practitioner deal appropriately with a situation even when not concentrating on it or expecting it  
- Simultaneity: ability to complete several tasks at one time  
- Rapidity: the ability to make an appropriate response quickly  
- Knowledge base |
| 7  | Crisis Management Behaviors/Teamwork\(^4\) | - Anticipation and planning  
- Awareness and utilization of all available resources  
- Distribution of workload and mobilization of help  
- Routine reevaluation of the situation  
- Awareness and utilization of all available information  
- Triage and prioritization  
- Efficient management of multiple patients  
- Effective coping with disruptions/distractions  
- Can add BARS assessment/Medteams\(^5\) |
| 8  | Safety Behaviors | - Safe medication ordering (asks about allergies, Knows indications/contraindications for therapy, communicates dose, route and timing, knows pt weight)  
- Any potentially harmful behaviors should be noted |

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