

Acute Abdominal Pain: Manage Without Delay

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Clinical Presentation: Abdominal Pain in the Emergency Department

The patient is a 21-year-old woman admitted to the emergency department (ED) with nontraumatic abdominal pain. She is being evaluated for possible appendicitis.

History and Physical Examination

History. The nurse obtains the following information about the patient's pain and other symptoms:

- She guards her abdominal area and describes severe "cramping" and "sometimes sharp" pain in her lower right abdominal area ("feels much worse than cramps during my period").
- She rates the intensity of her pain as 10 on a 0-to-10 numerical pain rating scale.
- The pain has been continuous and has worsened since it began 48 hours ago.
- Although the 650-mg of oral acetaminophen taken 3 hours ago reduced her fever of 100.8°F to the current 99.6°F, it has been ineffective in reducing the pain. She has taken no other analgesics.
- She tried both warm and cold application to her abdomen, without relief.
- She is intermittently nauseated and has vomited clear greenish fluid twice in the past 24 hours. The only oral intake she has been able to retain in the past 24 hours was one half of a cup of clear soup 6 hours ago.
- She reports constipation; her last bowel movement was 3 days ago. Her usual bowel pattern is daily evacuation.
- Her most recent menses ended 10 days ago.
- She denies tobacco or alcohol use and has no known allergies.

Physical examination. Physical examination revealed the following:

- General appearance: otherwise healthy, alert, and oriented woman demonstrating behavioral signs of pain, including grimacing, moaning, and guarding of abdomen
- Height, 5'4"; weight, 122 lb
- Oral temperature: 99.6°F
- Pulse: 92 beats/min
- Respiratory status: Bilateral breath sounds are equal and clear; respiratory rate is 20 breaths/min.
- Skin is warm, with no diaphoresis; nail beds and general skin color are pink

- Blood pressure: 128/72 mm Hg
- The patient describes "sharp" pain when the physician palpates her abdomen; she recoils and pushes away the physician's hands during the examination.
- Psoas sign is positive.

The admitting ED nurse requests pain medication for the patient, but the ED physician replies that analgesia can mask the diagnosis, so it will be withheld until a complete physical exam, CT scan, and all lab work are obtained and evaluated.

What is the nurse's best action to address this patient's pain?

- Continue to monitor the patient and report any changes in status to the physician
- Document the physician's decision to delay pain management until evaluation is complete
- Provide the physician with evidence that shows that appropriate analgesics do not mask diagnosis
- Request pain management orders promptly after the physician reviews the lab work and CT scan results

Save and Proceed

Discussion: Nursing Actions

Continue to monitor and report changes. Monitoring the patient and reporting changes are important and expected nursing activities, but they do not address relief of this patient's severe pain.

Document the physician's decision to delay pain management until evaluation is complete. The refusal to provide pain management orders for any patient with pain must be documented in the medical record, because this decision has legal implications. It is important to document the physician's statement and any nursing actions that were taken to advocate for pain relief for the patient. The administration or support of any nonpharmacologic methods must be documented as well. Although documentation in the medical record is an essential action, it is not the best action in addressing this patient's severe pain.

Provide evidence that analgesics do not mask a diagnosis. The provision of research and evidence-based guidelines is always the best action in situations that require a change in long-standing erroneous beliefs and practices. For many years, it was routine practice to withhold analgesics in patients presenting with nontraumatic undifferentiated acute abdominal pain, based on the belief that pain relief would interfere with accurately identifying the cause of the abdominal pain. However, decades of research in children and adults show that this practice is unjustifiable. Accepted evidence-based pain and emergency department policy statements and guidelines recommend the provision of analgesia during the diagnostic evaluation.

Request pain management orders promptly after the physician reviews the lab work and CT scan results. This would be a critical action if the physician cannot be convinced that the diagnosis will not be masked by analgesia. In such case, the nurse should immediately report the physician's actions to a nursing

supervisor, who should in turn discuss the issue with the physician and advocate for analgesia for the patient. If this is unsuccessful, the supervisor should follow the hospital's established chain of command to ensure that the appropriate medical authority is notified.

Other actions may include the provision of a report to the hospital ethics committee and the risk management department, because this practice is not only unethical but also opens the door to liability issues related to the undertreatment of pain and the potential for inaccurate diagnosis, leading to unnecessary surgery. Later actions include the development of an institutional policy that addresses the appropriate provision of analgesia during diagnosis to help prevent future similar incidences.

Accuracy of Diagnosis After Analgesic Administration

Abdominal pain is one of the most common symptoms in children^[1] and is the leading reason for people of all ages to seek care in the ED setting.^[2] It was standard practice for many years for clinicians in the ED to withhold pain medication during the diagnostic process in patients with acute, severe, undifferentiated abdominal pain, based on a recommendation proposed by Sir Zachary Cope in a 1957 publication of a monograph on the subject.^[3] The rationale for his recommendation was that analgesia would impair diagnostic accuracy.^[3,4]

Several studies conducted since then challenge Cope's recommendation,^[5,6] but the practice has been slow to change, and it was common as late as the 1990s to find ongoing strong support for the practice.^[4,6] Although less common today, the practice persists in many hospitals throughout the world. For example, a Canadian study published in 2008 that reviewed the medical records of 582 children presenting with nontraumatic abdominal pain in a pediatric ED found that only 9% of children received analgesia and 77% of the analgesics given were below the recommended dose for the child.^[1]

One of the first studies to challenge Cope's recommendation used a prospective double-blind design to evaluate nearly 300 patients aged 16 years or older who were given sublingual buprenorphine (an opioid) or saline (placebo) after admission to the ED with acute abdominal pain.^[7] The researchers concluded that the buprenorphine and placebo were equally effective in relieving pain, physical changes occurred in an inconsistent manner, and the changes did not alter the diagnosis. In fact, the correct diagnosis was clarified in 4 patients who received the opioid and was obscured in none.

Another early study administered intramuscular (IM) opioid or IM saline to 100 consecutive patients older than 16 years with clinically significant abdominal pain admitted to an ED in England.^[8] Incorrect diagnoses and management decisions were made in 2 patients who received opioid analgesia and in 9 patients who received saline. The researchers concluded that early administration of opioid analgesia "greatly" reduced pain, did not interfere with diagnosis, and may have actually facilitated diagnosis. Others have suggested that a more accurate diagnosis may be possible when the patient is comfortable during examination.^[9,10]

Later research in adults has shown similar results. A prospective, randomized, placebo-controlled study of 74 adults with abdominal pain found no instance of masking physical findings after intravenous (IV) morphine administration.^[11] These findings support the practice of early provision of analgesia to patients with undifferentiated abdominal pain.^[11]

The pediatric literature also supports the administration of analgesia during the diagnostic process. A randomized, double-blind trial in an ED in a children's hospital administered IV morphine or an equal volume of IV saline to 60 children, aged 5-18 years, with moderate-to-severe nontraumatic abdominal pain.^[12] An ED physician and a consulting surgeon independently recorded their physical examination findings and the

diagnosis of each patient before and after the morphine or saline. Pain was reduced from a median pain rating of 9 to 5 on a scale of 0-10 in those who received morphine and from 8 to 7 in those who received placebo. There was no significant difference in diagnostic accuracy between the groups. Other important findings were that the children requiring laparotomy were identified and no significant complications were found in those who received morphine. Another larger, multicenter, randomized, controlled study also demonstrated reductions in pain intensities and no difference in diagnostic accuracy in 108 children with acute abdominal pain who received IV morphine or placebo early in the diagnostic process.^[13]

Systematic reviews of the literature are the highest form of evidence. Reviews over the years,^[2,5,14] including a 2011 Cochrane review of 8 eligible studies,^[15] have demonstrated that opioid administration during diagnosis of acute abdominal pain does not increase the risk for diagnostic error or the risk for error in making decisions about treatment.

Policy Statements and Guideline Recommendations

In 1994, the American College of Emergency Physicians published a clinical policy for the initial approach to patients with nontraumatic acute abdominal pain.^[16] The policy was reviewed by the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, and the Internal Medicine Center to Advance Research and Education Practice Guidelines Network, and it called for "early and appropriate use of analgesic medications" for acute abdominal pain. In 2001, the Agency for Healthcare Research and Quality questioned the practice of withholding analgesia, describing it as unsupported by evidence and "inappropriate and inhumane."^[17]

The American Academy of Pediatrics underscores the importance of immediate triage, pain assessment, and pain treatment and reminds clinicians that the treatment of pain does not interfere with physical examination or diagnosis.^[18] In *Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain*, the American Pain Society provides a rationale for the provision of pain relief during diagnosis: "When the cause of acute pain is uncertain, establishing a diagnosis is a priority. However, symptomatic pain treatment should be initiated as the diagnostic workup progresses. A comfortable patient is better able to cooperate with diagnostic procedures."^[9]

Perhaps the most notable recommendation of all can be found in the most recent edition of *Cope's Early Diagnosis of the Acute Abdomen*, in which the current author of the monograph, William Silen, condemns the practice of withholding analgesia in patients with acute undifferentiated abdominal pain with the justification that it may interfere with diagnosis.^[19]

Treatment Options for Acute Abdominal Pain

It is important to remember that treatment of pain is a high priority for patients and their families, and attention to optimal pain relief may result in improved patient and family satisfaction with the ED experience.^[20] An interesting study of 147 patients who presented with pain in the ED showed that they had high expectations for pain relief, but only one third asked for pain medication.^[21] A high expectation for pain relief coupled with a reluctance to request pain medication underscores the importance of nurses advocating for patients who have pain. An encouraging finding in this study was that 71% of the patients received an analgesic whether they requested it or not, which is an improvement over previous research,^[1,20] but this still left more than one fourth of the patients with no analgesic administration.

Accepted guidelines recommend a multimodal analgesic regimen for severe acute abdominal pain.^[9,22,23] Multimodal analgesia combines analgesics with different underlying mechanisms of action, with the goal of improved pain relief with lower opioid doses than would be possible with an opioid-only treatment plan. Lower

opioid doses result in fewer opioid-induced adverse effects, such as nausea, constipation, sedation, and respiratory depression.^[23] Multimodal analgesia for acute pain includes the administration of nonopioids (acetaminophen and a nonsteroidal anti-inflammatory drug) as the foundation of the treatment plan. Acetaminophen, ketorolac, and ibuprofen are available in IV formulations^[24] and are appropriate when oral intake is contraindicated, such as in patients with abdominal pain of unknown origin.^[19] The nonopioids should be followed with a first-line IV opioid, such as morphine, hydromorphone, or fentanyl.^[23]

Pain Management: Case Outcome

The patient in this scenario is experiencing severe nontraumatic abdominal pain of unknown origin. Despite the nurse and the nursing supervisor providing the physician with research and accepted guidelines that support the administration of analgesia during diagnosis, the physician refused to provide pain management orders until after examining the patient and reviewing the laboratory work and CT scan results. The patient was diagnosed with appendicitis and scheduled for a laparotomy.

The nurse promptly administered 3 mg of IV morphine to the patient, which reduced her pain intensity from 10 to 5 within 10 minutes. Subsequently, IV acetaminophen was given in the preoperative holding room, which reduced the patient's pain intensity to 3.

The nurse documented the incident carefully in the medical record. The nursing supervisor talked with the medical staff director, who was agreeable to the formation of a multidisciplinary task force represented by nursing, pharmacy, and medicine to develop an evidence-based policy with the goal of preventing similar incidents in the future.

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