Top 10 Hard-to-Diagnose Diseases

Failure to diagnose and delay in diagnosis are the most common allegations of medical liability claims that we see at COPIC. These are the most frequent reasons for litigation in primary care and with emergency physicians. This is also frequently seen in surgical claims, and characterized as a failure to recognize and respond to a complication of the procedure.

What is the patient safety and risk management point of view? What diseases do physicians struggle with diagnosing? Is there a common theme and why are they hard to pin down? Is there a means to diagnose these illnesses earlier?

1. **Thromboembolic disease and pulmonary emboli**—Venous thromboembolic (VTE) disease refers to the conditions of deep vein thrombosis (DVT) and pulmonary embolism (PE). PE is secondary to DVT in the cause of about 10 percent of in-hospital mortality and it frequently occurs in post-op situations and after hospital discharges. There may be legitimate debate as to the extent of VTE prophylaxis required in a specific case. However, when adverse outcomes arise, your defense should be that you considered, in a reasonable fashion, the risks and benefits of the level of prophylaxis you chose. The documentation of your thought process is important, whether initiated by the nursing team and reviewed by you, or done entirely by you. Aggressive attention to ambulation and drug intervention reduces PEs by 60 percent. So even if you are doing everything to prevent these diseases, they may occur. And it may be a masquerader, often misdiagnosed as a myocardial infarction or pneumonia.

2. **Necrotizing fasciitis**—This is known as “flesh-eating disease” and is a rare infection of the deeper layers of skin and subcutaneous tissues, spreading across the fascial plane within tissues. The pathology is necrosis of the subcutaneous tissue and fascia with relative sparing of the underlying muscle. It progresses rapidly and has a greater risk of developing in the immunocompromised. It is of sudden onset and needs to be treated immediately with surgical debridement and intravenous antibiotics. It spreads rapidly, but at the beginning can look like a more routine cellulitis. Necrotizing fasciitis can be difficult to recognize until the short period of time in which it becomes fulminant. Major clues can be pain out of proportion to history and exam, and abnormal vital signs (toxic appearance) in the setting of musculoskeletal pain.

3. **Acute compromise of the central nervous system function**—There are many acute serious etiologies, some of which can have clinical intervention if recognized early. This focuses on dissection or clotting of major neck arteries. The major arteries of the head and neck include the carotid, subclavian, and vertebral arteries. Injury to these leads to major neurologic impairment and injury. There are a range of injuries that can occur including clotting, embolism trauma, and dissection. These manifest themselves in a myriad of ways. They can be silent, present with pain, or show vague neurologic symptoms. Investigation may include imaging that is not available in the necessary time at all institutions.

4. **Acute compromise of the spinal cord**—This includes epidural abscess and hemorrhage, vascular cord compromise, and discitis. Any lesion around the spinal cord has a high risk of damages. Clinical presentation may be quite variable, and these rare conditions are mimicked by many common conditions. The clinical triad of fever, back or neck pain, and neurologic deficit may not be present in many patients with epidural
abscess or discitis, or may present when prognosis for intervention is greatly reduced. Early presentations may be subtle and atypical presentations are not unusual. A sequential evolution has been described, with localized spinal pain, radicular pain and paresthesias, muscular weakness, sensory loss, sphincter dysfunction, and finally paralysis. The virulence of the infecting organism and the mode of infection contribute to the tempo of this progression. Abscesses from hematogenous spread tend to progress rapidly, while abscesses from osteomyelitis or discitis may evolve over weeks or months with slow progression of symptoms. Frequently, the patient gives a history of back strain or mild injury, further confusing the ability to make this rare and serious diagnosis.

5. **Ischemic bowel**—Intestinal ischemia is a condition in which inflammation and injury to the intestine results from inadequate blood supply. Intestinal ischemia occurs with greater frequency in the elderly. Causes of the reduced blood flow can include changes in the systemic circulation or local factors such as constriction of blood vessels or a clot. Intestinal ischemia can span a wide spectrum of severity; most patients are treated supportively and recover fully, while a minority with very severe ischemia may develop sepsis and become critically ill. Diagnostic tests including CT can be normal in early disease, making this a hard disease to diagnose.

6. **Sleep apnea and post-op hypoventilation**— Accompanying the obesity epidemic is an epidemic of sleep hypoventilation syndrome. Sleep apnea is a sleep disorder characterized by pauses in breathing or instances of shallow or infrequent breathing during sleep. In obstructive sleep apnea (OSA), breathing is interrupted by a physical block to airflow despite respiratory effort, and snoring is common. According to the National Institutes of Health, 12 million Americans have OSA. There are more cases of sleep apnea still because people either do not report the condition or do not know they have it. An individual with sleep apnea is rarely aware of having difficulty breathing, even upon awakening. Post op, these patients can be a particular threat. Giving opioids or other respiratory depressants may alter their typical sleep pattern and lead to aspiration and hypoventilation events.

7. **Compartment syndrome**—Compartment syndrome is increased pressure within one of the body’s compartments which contains muscles and nerves. Compartment syndrome most commonly occurs in compartments in the leg or arm. Compartment syndrome occurs after a traumatic injury and is frequent in the orthopedics or ER setting. The trauma causes a severe, high pressure in the compartment, which results in insufficient blood supply to muscles and nerves. Acute compartment syndrome is a medical emergency that requires surgery to correct. If untreated, the lack of blood supply leads to permanent muscle and nerve damage and can result in the loss of function of the limb. Classically, there are “6 Ps” associated with compartment syndrome: 1) pain out of proportion to what is expected based on the physical exam findings; 2) paresthesia; 3) pallor; 4) paralysis; 5) pulselessness; and 6) poikilothermia. Pain with passive motion is considered the first sign of compartment syndrome. A high index of suspicion is essential for timely diagnosis. Nerve blocks and high-dose narcotics desensitize the patient and may contribute to a delay in diagnosis. Loss of function and decreased pulses or pulselessness, however, are late signs. According to an article in *Trauma*, paresthesia in the distribution of the nerves transversing the affected compartment has also been described as a relatively early sign of compartment syndrome, and later is followed by anesthesia. The other three symptoms of compartment syndrome are no palpable pulse, paresis, and pallor. Pain is
often reported early and almost universally. The description is usually of deep, constant, and poorly localized pain out of proportion with the findings on physical examination. The pain is aggravated by passively stretching the muscle group within the compartment or actively flexing it. Unfortunately, post-op mimics these symptoms quite closely.

8. **Perforated or injured bowel post procedure**—Bowel injury may occur during surgery and is often an occult unrecognized injury. These injuries may be mechanical or thermal in nature. Often these are subtle injuries and are difficult to discern when the patient has post-op pain and gas issues. They may take a few days to manifest and become apparent. Delayed diagnosis can lead to serious adverse outcomes, including death.

9. **Appendicitis**—A common clinical illness that is a frequent miss in the ER or the office. It has a high frequency as it occurs to 7 percent of people in their lifetime. There are many descriptions of classical signs or symptoms, but there are many atypical presentations and that is where issues may arise. Is the pain not in McBurney’s area? Is it in the testicular area or higher in the abdomen? Does it mimic ovarian disease? Has the pain been lingering for several days, moving one away from that diagnosis? Is the patient obese, making the physical exam difficult? Clear discharge instructions and reexamination when the diagnosis is not clear can be helpful.

10. **Early sepsis**—Sepsis is a life-threatening inflammatory disorder and the immune system’s response to infection. It affects more than 750,000 people annually, with a prevalence of three cases per 1,000 persons. Mortality rates remain between 25 to 30 percent for severe sepsis. Sepsis is responsible for 20 percent of all in-hospital deaths each year, which equals the number of annual deaths from acute myocardial infarction. The pathophysiology of sepsis involves a complex interaction of proinflammatory and anti-inflammatory mediators in response to pathogen invasion. The systems most commonly infected are the respiratory, genitourinary, skin and gastrointestinal systems, as well as the skin and soft tissue. People at the extremes of age are at higher risk of developing sepsis. Patients older than 65 years are 13 times more likely to develop sepsis and have a twofold higher risk of death from sepsis. The signs and symptoms of sepsis are highly variable, and a clinical diagnosis is often made before culture results are available. Although localized signs and symptoms may be present, organ hypoperfusion or shock can manifest without knowledge of causation. Syndromes that mimic sepsis include hypovolemia, blood loss, PE, acute myocardial infarction, acute pancreatitis, diabetic ketoacidosis, and adrenal insufficiency. Many patients present with a fever, and discerning those with sepsis is tricky. To diagnose sepsis, physicians must obtain historical, clinical, and laboratory findings indicative of infection and organ dysfunction.

**What are the take-home lessons?**

1. A plaintiff attorney can assert high damages in many of these illnesses. Neurologic and vascular injuries are especially common among the top ten types of cases.

2. Some of these illnesses are common such as DVT, PE, and appendicitis. In frequent illnesses, it is often the atypical presentations that are the problem. Subtle or unusual presentations can mislead you.
3. In rarer conditions, there is a narrow window of opportunity to make the diagnosis before it causes irreversible harm to a patient. You might be diagnosing a disease that you have not seen before. The pearl here is to revisit your differential diagnosis in patients who are seriously ill and evolving, and try to avoid the anchoring bias that may lead you to not consider the real diagnosis.

4. In confusing situations, always ask yourself, “What else could this be? What would I hate to miss?”

5. What is the window of opportunity for having a realistic chance of altering the course of the care and preventing the harm? The window of opportunity arises from a balance of the trajectory of the disease and the medical intervention capacity. Trajectory is defined as “at a given point in time, what is the likelihood of it leading to a medically or surgically irreversible harm or death?” Medical intervention capacity is defined as the “likelihood that medical or surgical intervention can make the diagnosis and subsequent intervention can change the course of the disease before leading to harm or death.” Many factors affect both the trajectory/likelihood of successful intervention and the medical intervention capacity to make a timely diagnosis and deliver the correct medical or surgical therapy. There can be instances in which there is practically no effective window of opportunity for a reasonable practitioner in a given setting, and the defense of such an outcome rests greatly on our ability to recreate (from your documentation) what happened, what you thought, and your reasonable efforts.

1 Sandler DA et al J of Royal Society of Medicine 1989
2 Trauma October 2006 vol. 8 no. 4 261-266