

Connecting the dots leads to suspicion of sepsis

The patient's splenectomy helps pinpoint the cause of her symptoms.

By Hildy Schell-Chaple, MS, RN, FAAN



MARIA ESPINOZA, age 45, is recovering on the medical-surgical unit 2 days after a decompression fasciotomy for compartment syndrome of her right thigh, following a quadriceps muscle tear she sustained in a tennis match. When you make your evening vital-signs rounds, she appears more lethargic than before and asks, “Why is the pig is running around the room?” Her husband reports she seems confused at times and is coughing more.

History and assessment hints

At shift handoff this morning, you'd learned Mrs. Espinoza has a past medical history of Hodgkin's lymphoma, treated 25 years ago with radiation therapy and a splenectomy. Her current vital signs are heart rate (HR) 110 beats/minute, blood pressure (BP) 100/60 mm Hg, respiratory rate (RR) 24 breaths/minute, oxygen saturation by pulse oximetry (SpO₂) 92% on room air, and temperature 96.9° F (36.1° C).

Now, as you screen her for delirium, you become concerned by her inattention, reports of hallucinations, and shortness of breath when answering questions. Her tachypnea and tachycardia suggest systemic inflammatory response syndrome, so you check for signs and symptoms of a new infection. You find her fasciotomy wound and surrounding tissue free of apparent infection and note coarse breath sounds on auscultation.

Call for help

Suspecting Mrs. Espinoza has sepsis, you notify the surgeon and the rapid response team (RRT). Because you anticipate a sepsis diagnostic workup and suspect she has a pulmonary infection source, you grab oxygen-delivery and lab sampling supplies.

On the scene

The pharmacist and RRT (including a nurse practitioner [NP]) arrive at the patient's room. You report Mrs. Espinoza's history, her admission procedure, and current clinical condition and convey your concern about her mental-status changes, new delirium, change in breath sounds, and low SpO₂. Knowing she had a splenectomy years ago, you state she may be at increased infection risk. When the NP reviews the patient's chart, she notes that her morning

white blood cell count was 14.5/mm³ and that she'd received only one pneumococcal vaccination 10 years ago.

After initiating oxygen by nasal cannula as ordered, you reassess and report Mrs. Espinoza's vital signs: HR 125, BP 105/58, RR 26, SpO₂ 93% on 6 L/minute, and temperature 96.6° F (35.9° C). The team orders STAT blood cultures, ABG sampling with lactate levels, chest X-ray, and sputum cultures if her cough becomes productive. ABG values are blood pH 7.33, arterial carbon dioxide 31 mm Hg, arterial oxygen 85 mm Hg, bicarbonate 20 mEq/L, and SpO₂ 94%. Her lactate level is 4.2 mmol/L.

The team orders broad-spectrum antibiotics and an I.V. bolus of 2 L normal saline solution. Within 2 hours of these interventions, Mrs. Espinoza seems more alert. Her delirium screen is negative. Her HR has dropped to 95 and her RR to 20. Her SpO₂ improves to 96% on oxygen 6 L/minute, and her repeat lactate level is 2.1 mmol/L. You raise the head of her bed to optimize pulmonary function and reorient her frequently.

Outcome

Mrs. Espinoza remains clinically stable. For the next 48 hours, she continues to receive oxygen and I.V. fluids at a maintenance rate. When her sputum and blood cultures come back positive for streptococcal pneumonia, the physician narrows her antibiotics to penicillin, continued for 7 days. Mrs. Espinoza is discharged later without further incidence.

Education

Mental-status changes, including new-onset delirium, suggest sepsis-related organ dysfunction. This finding—as significant as low urine output or decreased SpO₂—must be conveyed to other healthcare team members. Although fever is a common sign of infection, some sepsis patients present with normothermia or hypothermia (like Mrs. Espinoza). Your knowledge and quick response to suspected sepsis optimized her oxygen delivery and helped prevent life-threatening organ dysfunction associated with sepsis. ★

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