

DIABETES, SEPSIS, AND THE COMMERCIAL PILOT

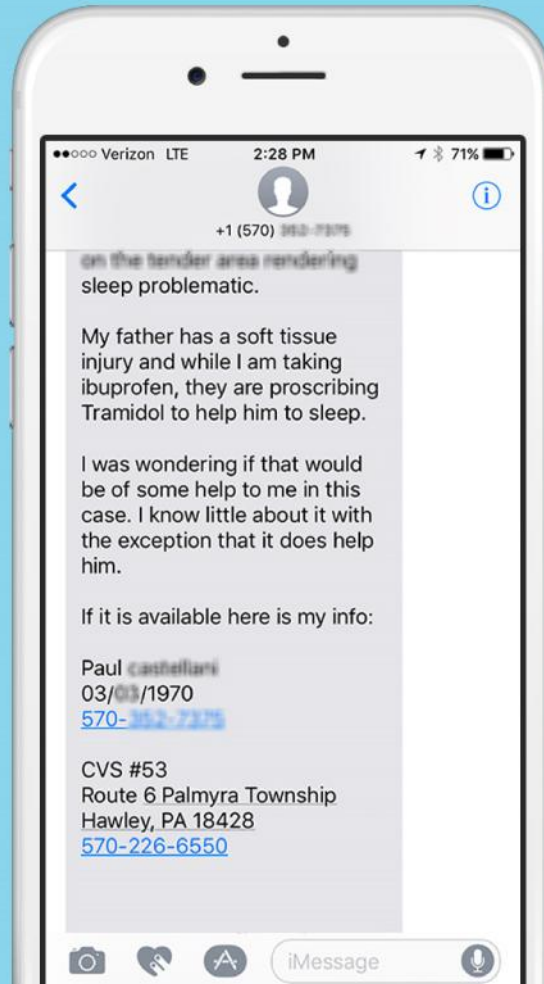
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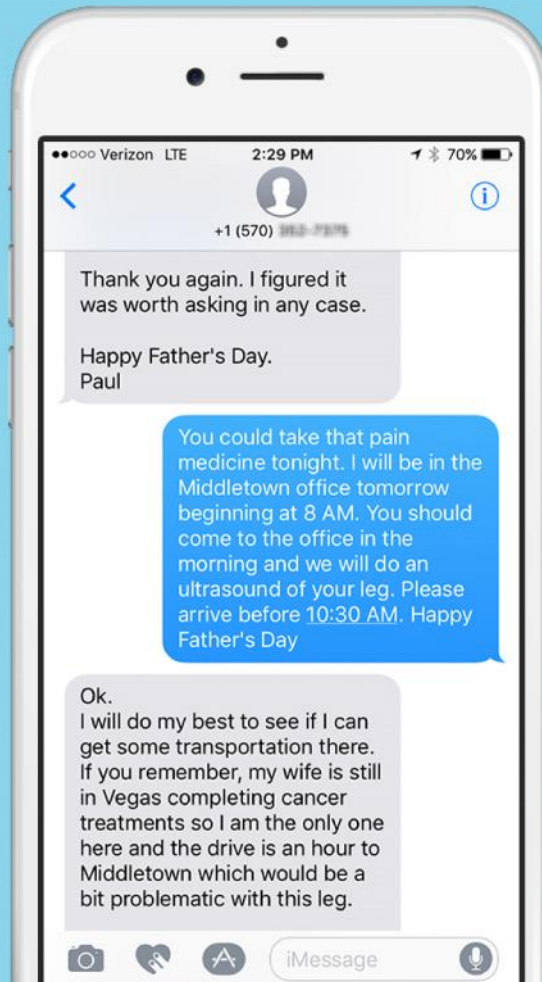
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CAMA, Cleveland, Sept 26, 2019







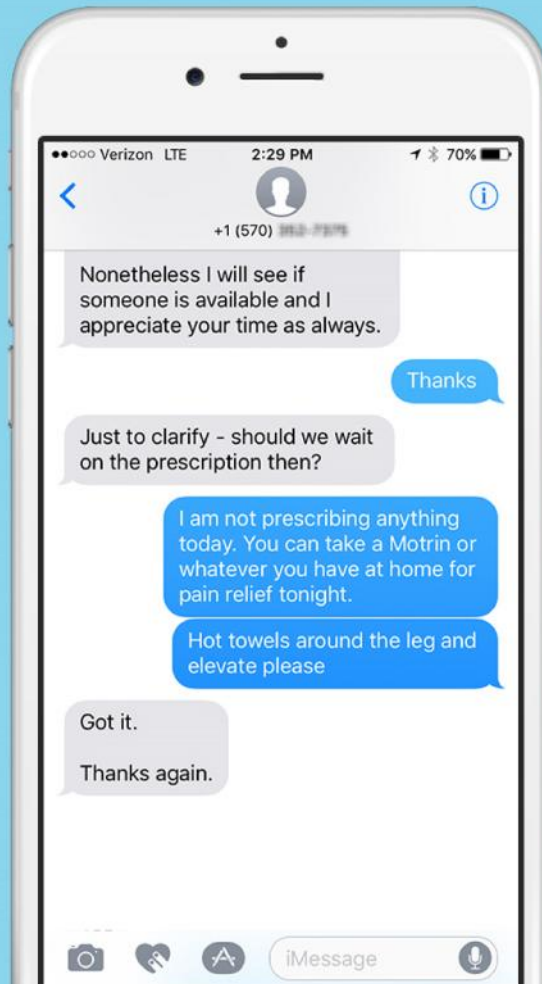


Thank you again. I figured it was worth asking in any case.

Happy Father's Day.
Paul

You could take that pain medicine tonight. I will be in the Middletown office tomorrow beginning at 8 AM. You should come to the office in the morning and we will do an ultrasound of your leg. Please arrive before 10:30 AM. Happy Father's Day

Ok.
I will do my best to see if I can get some transportation there. If you remember, my wife is still in Vegas completing cancer treatments so I am the only one here and the drive is an hour to Middletown which would be a bit problematic with this leg.



Text Messaging Your AME: Caveat Emptor

- These are the text messages from a 47-year-old United Airlines Captain, Paul C. on Father's Day, Sunday June 18, 2017.
- It sounded routine, unalarming, and why worry? He did not come to my office the next day.
- The following week, Paul C. visited a local urgent care where he was diagnosed with a hematoma although there was no history of trauma.
- The leg pain became constant and bilateral.

- Paul C. did not contact me again until he arrived at my office 8 days later, my last patient on the afternoon of Monday, June 26.
- This previously healthy and athletic commercial pilot had no significant past medical history or medications.
- He passed his first-class medical exam for the FAA just three months earlier. Now roughly a month after first noticing symptoms, he presented to my office in considerable distress.
- Paul C. limped in pain, alone and hunched over, and appearing acutely ill.

- Over the previous week, Paul C. had waited at home for improvement as his legs swelled until the fluid reached his scrotum. He said that he gained 20 pounds.
- Now there was redness and marked warmth over both legs. Walking was difficult as he had difficulty bending his knees. Paul C. said the pain was localized along the left quadriceps and behind his right knee.
- He denied injuring himself, chest pain, shortness of breath, fever or chills. He had maintained a regular schedule flying and had multiple episodes of prolonged sitting until early June.



"Give it to me straight, Doc. How long do I have to ignore your advice?"

- Paul C. stands 72 inches and weighed 223 pounds which is almost 10 pounds higher than his previous weight during his last medical exam 3 months earlier.
- His blood pressure was elevated at 160/90 and his heart rate was tachycardia to 123 beats per minute. He had rapid breathing and was afebrile.
- There was cellulitis and considerable swelling of both thighs which were markedly asymmetric. There was both pretibial and sacral edema. The thighs were crepitant, boggy, and swollen. There were no signs of deep venous thrombosis.

Left medial thigh



Left posterior knee



Right posterior knee



Right anterior knee



- Bilaterally both quadricep areas were spongy and distended. Further questioning revealed that three weeks earlier he popped a blister on the dorsum of his left foot. There was a left plantar 2 cm open wound without pus.
- Laboratory studies showed a white blood cell count of 18,600 with left shift, glucose 343, an anion gap of 25.45 (corrected for albumin), and a positive D-dimer of 8.79. His hemoglobin A1C was 11.7 and urinalysis with 3+ glucose and ketones.
- CT scan of the chest with intravenous contrast showed small right pleural effusion with right lower lobe atelectasis.

- Echocardiogram showed a dilated left ventricle with overall left ventricular systolic function mildly depressed due to diffuse mild hypokinesis involving all left ventricular wall segments.
- There was mild tricuspid and aortic insufficiency without valvular stenosis or mitral valve prolapse. Calculated ejection fraction was 51% and there were no vegetations seen.
- Ultrasound of the right leg revealed that there was a complex cystic structure within the right popliteal fossa and extending into the posterior proximal tibia measuring 2.1 x 1.2 x 1.7 cm and 3.5 x 2.1 cm.

- CT of the left femur showed "a large low density mass-like structure which is apparently a very large collection of fluid within the thigh anteriorly and laterally extending almost the entire length of the thigh over almost 40 cm in length, 11 cm in width and 6 cm in depth with large amount of fluid and multiple gas bubbles.
- Findings are consistent with a very large soft tissue abscess. The abscess appears contained within the anterior compartment. No definite involvement in the posterior compartment could be identified.
- Extensive changes in the subcutaneous fat of the left pelvis and thigh consistent with infection and/or edema and or inflammation."

- Venous study of the right leg showed complex cystic structures within the internal right popliteal fossa and extending into the posterior proximal thigh.
- They measure 2.15 x 1.2 x 1.7 cm and 3.5 x 2.1 cm likely related to complex collection identified on recent CT scan compatible with soft tissue infection or abscess.
- On admission to the hospital, Paul C. was diagnosed with sepsis and bilateral thigh abscesses secondary to staph aureus. The patient also had new onset diabetes with diabetic ketoacidosis.



"We're running a little behind, so I'd like each of you to ask yourself, 'Am I really that sick, or would I just be wasting the doctor's valuable time?'"

- On the first day of admission, Paul C. underwent bilateral incision and drainage of large left and right thigh abscesses, debridement of the left foot and removal of bilateral great toenails.
- Cultures and sensitivities from abscess contents grew methicillin sensitive staphylococcus aureus and streptococcus group B bacteria were isolated from the abscesses.
- Blood cultures grew staphylococcus aureus bacteremia.

- The surgeon described the procedure as follows: “An incision was made along the area of the most induration and erythema until pus was located. The pus was approximately 1 cm to 2 cm below the surface and was under such pressure that there was significant splatter to two feet. This incision was widely opened and a tremendous amount of pus was removed from the patient’s thigh. The incision was ultimately extended over the left knee as the pus was tracking towards the knee. The abscess essentially extended from the lateral aspect of the hip to the knee.”

- “The right leg abscess was then incised. There was a large amount of erythema just posterior to the knee in the popliteal fossa. A curvilinear incision was made at the back of the patient’s knee. Pus was noted and pus seemed to be tracking in the fascial planes. It was a boggy area over the right thigh and over the area of most fluctuance an incision was made. There was no erythema in this area but a large amount of pus was removed from this incision as well. The pus was completely evacuated and then these wounds were packed. Again, hemostasis was difficult to achieve due to the swelling, edema, and large surface area of concern. This abscess tracked as far back as the patient’s buttocks.”

- “Attention was directed towards the plantar aspect of the patient’s left foot where a portion of dead tissue was removed. The tissue was sharply debrided and then attention was directed towards the patient’s bilateral great toes. Both toenails were ingrown with a plethora of granulation tissue over the toenails. Pus had been seen coming from the nailbed so both toenails were removed. Estimated blood loss was 500 mL.”

- After the radical debridement, Paul C. was taken to the ICU for management of sepsis, diabetic ketoacidosis, and transient respiratory failure.
- He was treated with Piperacillin-Tazobactam, Levofloxacin, Vancomycin, and insulin.
- He remained in the hospital for 10 days followed by inpatient rehab for several weeks.

Right posterior thigh



Left lateral thigh



Left lateral thigh







- This commercial pilot returned to unrestricted duty and had his FAA first class medical certification reinstated on April 10, 2018. His legs now look like this:

Left lateral thigh



Right posterior thigh



- This case illustrates an unusual presentation of a previously healthy pilot with sepsis, staph aureus bacteremia, and bilateral lower extremity abscesses secondary to a blister on the dorsum of the left foot, in the setting of new onset diabetes mellitus.
- Hematogenous spread of the bacteria seeded both legs. However, he was quite fortunate that he did not develop endocarditis.
- The initial text message to this physician was compatible with a minor orthopedic injury. However, the progression of his illness was life-threatening.

- He was not known to be diabetic prior to this illness. Since leaving the hospital he has been controlled with oral hypoglycemic medications and has completed extensive physical therapy.
- This case reminds us that common orthopedic complaints may be the earliest signs of less common systemic illness.
- The differential diagnosis in a commercial pilot with leg pain and swelling would include venous thrombosis and thromboembolism. A popliteal vein thrombosis could masquerade for a posterior fossa abscess until the evaluation is completed.

- Furthermore, a patient with tachypnea and tachycardia will need careful evaluation to determine if the cause is a pulmonary embolus, diabetic ketoacidosis, or sepsis or a combination of these acute illnesses.
- Almost half of all hospitalized patients are seen by an outpatient provider in the week before hospitalization for an infection.
- The warning signs of infection may be obscured within other symptoms and only become manifest later.
- This patient was afebrile and denied fever or chills prior to admission.

- Immediate treatment including surgical drainage and early intravenous antibiotics were needed to reduce the increased mortality with each hour of delay.

an actual drawing,
handed to a flight
attendant on a
Qantas flight by
an 8 yr old girl



dear Captain
My name is Nicola im 8
years. old. this is my first
flight but im not scared. I
like to watch the clouds go
by. My mum says the crew is
nice. I think your plane is
good. thanks for a nice flight
dont fuck up the landing



LUV Nicola

xxx

Thank you!

Ray Basri, MD, FACP