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CASE

The patient is a 64-year-old man who was brought to the emergency department (ED) by paramedics following new-onset seizures and loss of consciousness. On arrival, his Glasgow Coma Scale score was 11. He experienced two further generalized seizures in the ED and was treated with lorazepam (Ativan) and phenytoin (Dilantin). He had been evaluated 2 days previously at another institution for a ground level fall and sent home. According to his wife, who provided most of the history, the patient appeared to be confused and sleepy following this event and did not return to his usual self.

The patient had coronary disease, hypertension, osteoporosis, and a history of transient ischemic attacks (TIAs). He had previously had bypass graft surgery. His medications included aspirin, clopidogrel (Plavix), finasteride (Proscar), and modafinil (Provigil). He denied smoking or the use of alcohol or drugs. He reported no fever, chest pain, shortness of breath, nausea, vomiting, or diarrhea, but he did say he had a mild headache and backache.

Physical examination The oral temperature was 99.8°F (37.7°C). The initial BP was 190/71 mm Hg; pulse was 74 beats per minute (bpm); respiratory rate, 12 breaths per minute; pulse oximetry on room air, 100%. On a repeat measurement, the BP was 130/53 mm Hg, pulse was 86 bpm, and the respiratory rate was 14 breaths per minute.

The patient was able to follow commands but was nonverbal. His head was atraumatic and normocephalic. He had no focal motor or sensory deficit. Strength was intact in all extremities, and cranial nerves II through XII were grossly intact. Extraocular movements were intact. The lungs were clear to auscultation bilaterally, and the cardiac examination revealed a regular rate and rhythm.

Tests Laboratory studies disclosed the following values: serum potassium, 5.1 mmol/L; serum urea nitrogen, 29 mg/dL; creatinine, 1.4 mg/dL. The serum magnesium level was 2.4 mg/dL. Results from the coagulation panel were normal. The ECG revealed a normal sinus rhythm with a rate of 75 bpm and Q-waves in V₁, V₂, and V₃ (unchanged from an ECG obtained 1 year previously). CT of the head was ordered (see Figure 1).

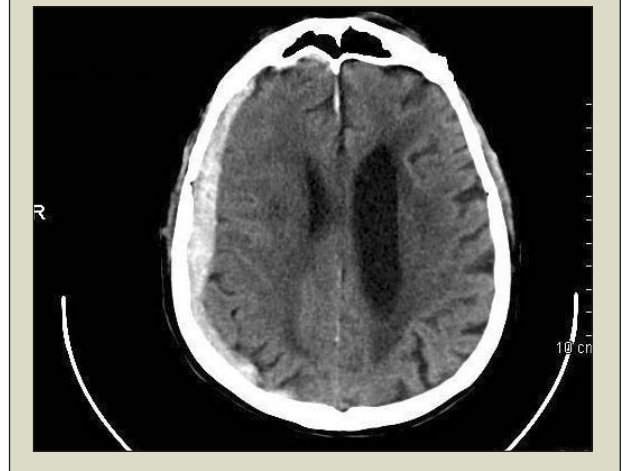
WHAT DOES THE CT SCAN REVEAL?

- Intracerebral bleeding
- Epidural hematoma
- Stroke or TIA
- Subdural hematoma

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FIGURE 1

Cranial CT scan



DISCUSSION

CT demonstrated a right-sided subdural collection from the anterior right frontal region to the right parietal region. There was no midline shift and minimal mass effect. The patient was admitted with a diagnosis of acute subdural hematoma (SDH). Craniotomy with evacuation was recommended, but the patient and his wife refused. Repeat CT the next morning demonstrated that the SDH had increased in size, and a mild left-sided hemiparesis had developed. At this point he and his wife consented to surgery, and the procedure was performed successfully. He improved slowly and was discharged home in stable condition. He continues to do well and is being followed by physical and occupational therapists.

Comment SDH most commonly results from a tear in the bridging veins and can be acute, subacute, or chronic. In the acute phase blood collection is rapid, the subacute phase begins 3 to 7 days later, and the chronic phase develops after 3 weeks. Elderly persons are at a high risk because of their predisposition to falls and because of changes in the brain that come with aging. People taking anticoagulant medication are also at risk, as are shaken babies and persons with hemophilia.

CT without contrast remains a useful tool in the evaluation because of its rapidity, reasonable cost, availability, and sensitivity. On CT, acute SDH typically appears as a hyperdense, concave mass adjacent to the inner table of the skull. Edema is usually present, and some degree of midline shift should be evident with moderate to large SDHs.

Rapid surgical evacuation should be considered when a SDH is symptomatic and greater than 1 cm at the thickest point (greater than 5 mm in pediatric patients), results in midline shift, or has a significant mass effect. After evacuation, medical treatment is aimed at controlling intracranial pressure and maintaining cerebral perfusion pressure at 60 to 70 mm Hg or higher. Some SDHs—such as those that cause minor symptoms such as headache—can be watched and followed with serial CT to see if they resolve. □