A case of head injury

An 82 year old man tripped on uneven paving and sustained a frontal head injury. A passerby came to his aid and called an ambulance. The patient did not lose consciousness and was fully oriented at the scene.

On arrival at the emergency department he was fully oriented and remembered all events. He had been feeling nauseous in the ambulance and had vomited twice since his arrival. Apart from ongoing nausea and a mild headache he was feeling okay. Baseline observations were normal. Clinical examination showed no neurological deficit. He had extensive right periorbital swelling and a full thickness right forehead laceration that needed suturing.

The casualty officer was worried about the ongoing nausea and arranged for an urgent computed tomogram of the brain (figure).

1. What is the most likely diagnosis?
2. What additional images would be helpful?
3. What injuries and complications are associated with this pathology?
4. How should this condition be managed?

Submitted by Benjamin R K Smith, Aidan G Shaw, and David C Howlett
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Jaundice and lethargy in a 26 year old man

A white 26 year old man, who had previously been fit and well, was referred to the on-call medical team by his general practitioner. The general practitioner provided the results of the patient’s blood tests and described breathlessness on climbing stairs, increasing fatigue, and the appearance of jaundice over the previous week. The patient had no history of cough, upper respiratory tract infection, or sore throat. His appetite remained healthy, his weight was stable, and he denied any fever or night sweats. He was not on medication before the illness and he had no relevant travel history.

On examination, he was pale and his skin and sclera were jaundiced. His temperature was 36.7°C, pulse 87 beats/min, blood pressure 144/76 mm Hg, respiratory rate 16 breaths/min, and oxygen saturation 100% on air. Abdominal examination showed an enlarged spleen of 4 cm, but no hepatomegaly or lymphadenopathy. Respiratory, cardiac, and neurological examinations were normal.

Laboratory tests showed haemoglobin 80 g/L (reference range 130-180), red blood cells 2.52×10¹²/L (4.50-6.50), mean cell volume 89.4 fL (80-98), white cell count 15.4×10⁹/L (4.0-11.0), reticulocyte count 315×10⁹/L (20-100), platelets 211×10⁹/L (150-400), bilirubin 44 µmol/L (<17), aspartate transaminase 44 IU/L (5-35), lactate dehydrogenase 722 IU/L (125-243), and haptoglobin 0.08 g/L (0.27-1.39). Urinalysis detected no bilirubin and raised urinary urobilinogen. A blood film showed lymphocytosis with reactive lymphocytes, spherocytosis, and increased polychromasia.

1. How do the blood results explain this man’s jaundice?
2. What is the important finding on the blood film?
3. What further test would you arrange to establish a diagnosis?
4. What probably precipitated this presentation?
5. How would you manage this condition?

Submitted by Andrew Johnson and Wendy Mills
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PICTURE QUIZ

A statistical question

The ecological fallacy

Researchers explored the relation between morbidity from injury in children and socioeconomic deprivation. An ecological cross sectional study of 862 electoral wards in the Trent region of northern England was performed. For each electoral ward the researchers obtained rates of admission of children to hospital for all injuries between 1992 and 1997. All hospitals in the Trent region were included, and data were aggregated for each electoral ward, regardless of which hospital children were admitted to. The Townsend score associated with each electoral ward was obtained. This score assesses socioeconomic deprivation in families and includes measurement of employment status, overcrowding, car ownership, and owner occupation status.

A positive association between rates of hospital admission for all injuries in children and socioeconomic deprivation was reported, with those electoral wards with the greatest socioeconomic deprivation having the highest hospital admission rates. The researchers commented that the results were subject to the ecological fallacy.

Which one of the following statements best describes the ecological fallacy in relation to the results of this study?

a) Children with an injury may be admitted to a hospital in an electoral ward in which they do not live.
b) Only those hospitals in electoral wards with the greatest socioeconomic deprivation admit children with an injury.
c) Children from families with greater socioeconomic deprivation are more likely to be admitted to hospital with injuries.
d) Hospitals are located only in electoral wards with the greatest socioeconomic deprivation.

Submitted by Philip Sedgwick
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