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NEUROLOGICAL PICTURE

Post-traumatic cerebral venous sinus air embolism

A 20 year old male pedestrian sustained a head injury in a road traffic accident. He was briefly unconscious. When assessed shortly after the accident he had a right sided haemotympanum with a Battle's sign and a right abducens palsy. The remainder of the nervous system was normal. There were no other external injuries.

Brain CT showed a fracture involving the right temporal bone extending into the mastoid air cells (figure A, arrow). A localised collection of air was seen along the posterior border of the brain in the transverse sinuses (figure B white arrow). Air was also seen in the confluence of the sinuses (figure B white arrow). When CT was repeated one week later air in the venous sinuses was no longer visible (figure C). No antibiotics were given.

Free air in the intracranial cavity can often be shown on CT within the extradural, subdural, and subarachnoid spaces after head trauma involving fracture of the base of the skull. Post-traumatic air embolism in the cerebral venous sinuses, although a recognised phenomenon, is not commonly found on imaging. In this patient, air could have entered the transverse sinus from the mastoid air cells through the mastoid process after fracture.

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