

Pneumocephalus following breathalyzer use

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To the Editor,

We report a case of a 37-yr-old male who developed pneumocephalus following use of a breathalyzer (the patient provided consent for publication of this report). The patient had a history of traumatic basal skull fractures and left frontal subdural hematoma for which he received surgery. Two months following the surgery, he underwent a titanium cranioplasty of the basal skull. The patient had to undergo reoperation one year later to evacuate an epidural empyema, at which time the titanium cranioplasty was removed. During a routine roadside police check two months following the reoperation, the patient had to blow into a breathalyzer to ascertain his blood alcohol level. A few hours after the test, he felt a subcutaneous swelling on his forehead (Fig. 1), and a computed tomography scan performed four days later showed frontal epidural pneumocephalus communicating with frontal subcutaneous emphysema (Fig. 2).

Pneumocephalus often occurs after surgical evacuation of a subdural hematoma, but it can also occur as a result of various other intracranial operations.^{1,2} In the case of a basal skull dural defect, the occurrence of high air pressure in the nasal cavity may cause pneumocephalus, and it has



Fig. 1 Subcutaneous swelling in the left frontal region

been reported during sneezing or with the use of noninvasive ventilation after neurosurgery.³ In our patient, the strong expiratory effort needed to inflate a single-use breathalyzer likely caused significant increases in airway pressure in the nasal cavity that may have reopened a healing dural defect. This case represents a unique occurrence of such a complication caused by the use of a breathalyzer, and it speaks to the potential danger of any high nasal airway pressures (e.g., during use of spirometry, continuous positive airway pressure, or in this case, a breathalyzer) during the early postoperative period after basal skull surgery.

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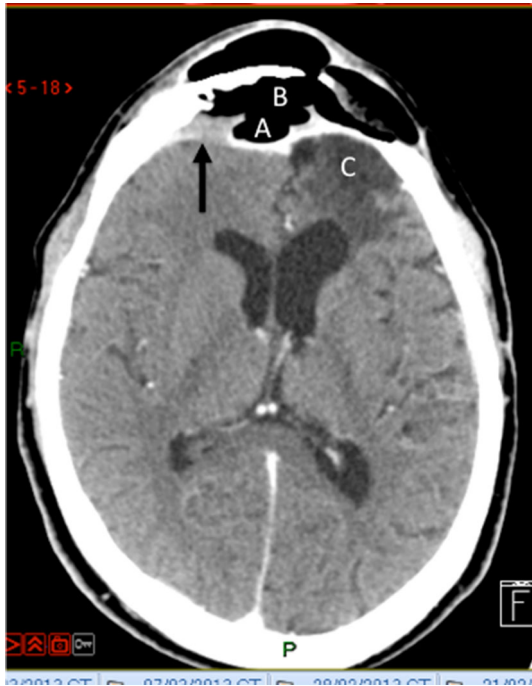


Fig. 2 Brain computed tomography scan showing the frontal sinus (A), the epidural pneumocephalus (B), and the abscess (C). The arrow indicates the dural border

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Conflicts of interest None declared.

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