Tidsskriftet Tidsskrift for Den norske legeforening

Under pressure

IMAGES IN MEDICINE

BJØRN-TORE LISTOG SUNDET

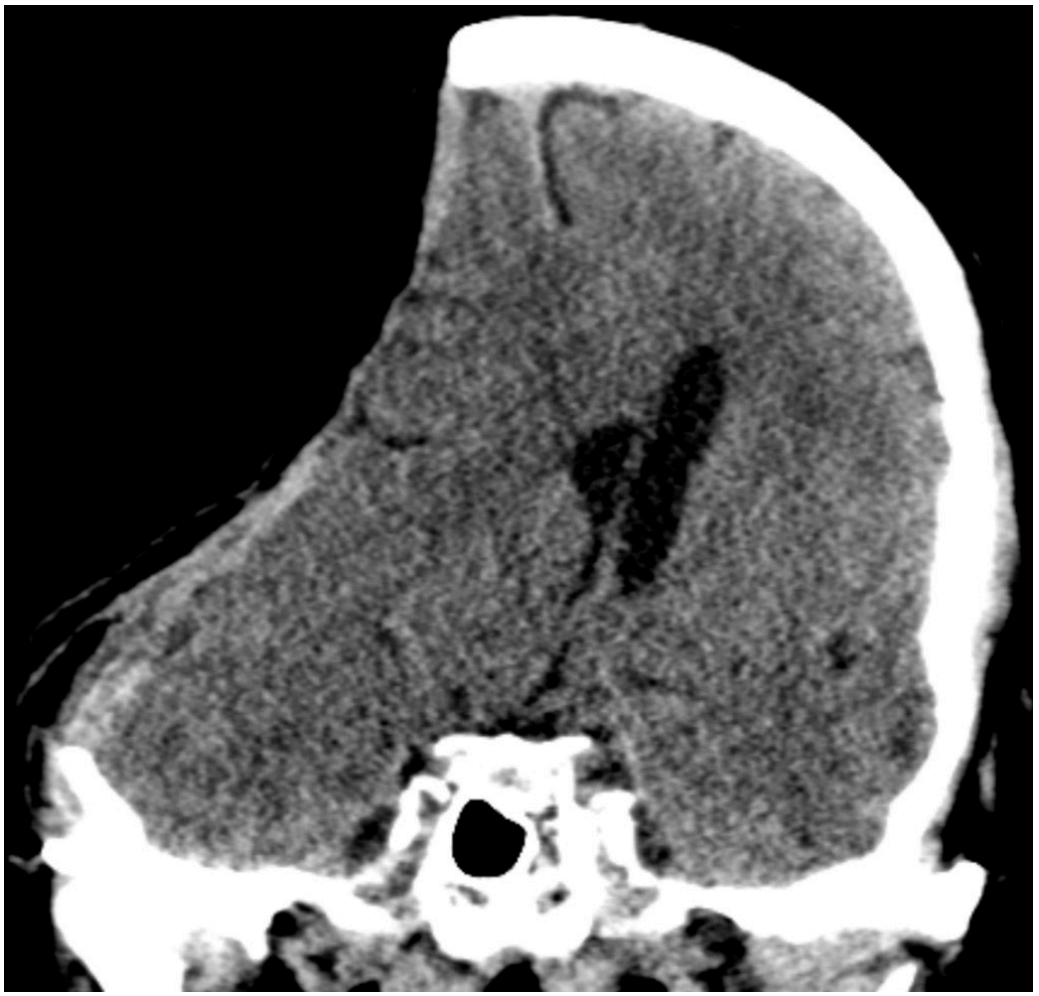
E-mail: Bjorn-Tore.Listog.Sundet@stolav.no
Clinic of Radiology and Nuclear Medicine
St. Olavs Hospital
Bjørn-Tore Listog Sundet, specialty registrar
The author has completed the ICMJE form and declares no conflicts of interest.

DANIEL FOSSUM BRATBAK

Department of Neurosurgery
St. Olavs Hospital
and
Department of Neuromedicine and Movement Science
NTNU
Daniel Fossum Bratbak, PhD, specialty registrar and associate professor
The author has completed the ICMJE form and declares no conflicts of interest.

ERIK MAGNUS BERNTSEN

Clinic of Radiology and Nuclear Medicine
St. Olavs Hospital
and
Department of Circulation and Medical Imaging
NTNU
Erik Magnus Berntsen, PhD, senior consultant and associate professor
The author has completed the ICMJE form and declares no conflicts of interest.



This image shows paradoxical brain herniation in a patient with known renal failure, hypertension and coronary artery disease who had undergone a hemicraniectomy a few months earlier. Paradoxical brain herniation is a rare, and potentially life-threatening, complication following removal of a large area of the skull. One of the roles of the skull is to protect the brain from the difference in intracranial pressure relative to atmospheric pressure. In larger craniectomies, the atmospheric pressure may exceed the intracranial pressure, causing displacement of underlying brain tissue and, at worst, herniation (1). The condition is most commonly seen with acute pressure changes following lumbar puncture or drainage of cerebrospinal fluid (with a shunt or ventricular drain) in patients who have undergone a craniectomy, and may be further exacerbated by dehydration or head-of-bed elevation. Acute treatment consists of lowering the head of the bed and making mechanical improvements to cerebrospinal fluid drainage if appropriate (adjusting the resistance of ventricular or lumbar drains), as well as replacing the bone flap if possible. Intensive treatment with overpressure ventilation (2) and fluid therapy or treatment of heart failure can alter the intracranial pressure and in some cases contribute to the development of this condition.

The patient's next of kin have consented to the publication of this article.

The article has been peer-reviewed.

LITERATURE

1. Akins PT, Guppy KH. Sinking skin flaps, paradoxical herniation, and external brain tamponade: a review of decompressive craniectomy management. Neurocrit Care 2008; 9: 269–76. [PubMed][CrossRef]

2. Yiallourou T, Schmid Daners M, Kurtcuoglu V et al. Continuous positive airway pressure alters cranial blood flow and cerebrospinal fluid dynamics at the craniovertebral junction. Interdiscip Neurosurg 2015; 2: 152–9. [CrossRef]

Publisert: 28 October 2019. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.19.0144
Received 14.2.2019, first revision submitted 27.5.2019, accepted 30.8.2019.