# Celebrating 35 Years of the AJNR: November 1982 edition

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# Celebrating 35 Years of the AJNR

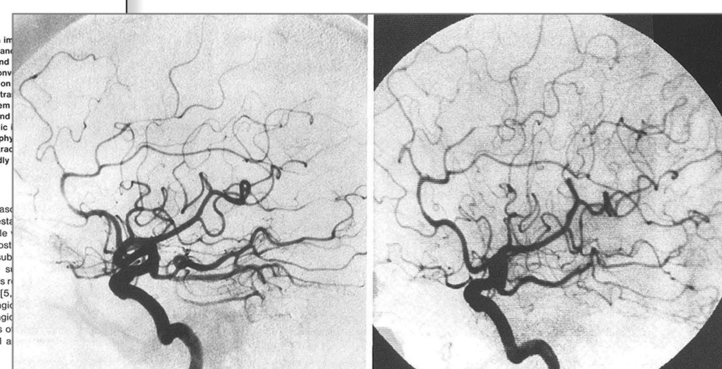
November 1982 edition

## Digital Subtraction Cerebral Angiography by Intraarterial Injection: Comparison with Conventional Angiography

Michael Brant-Zawadzki[1,2]
Robert Gould[2]
David Norman[2]
Thomas H. Newton[2]
Barton Lane[3]

For 4 months, a prototype digital subtraction system was used to obtain im
the cerebral vasculature after intraarterial contrast injections. In 12 instan
intraarterial injections were recorded with both a digital subtraction unit and
tional direct magnification film-screen system. The digital subtraction and conv
film subtraction images were compared and graded for quality and information
by three skilled observers. In addition, quantitative measurements of contra
performance and spatial resolution were obtained on both the digital system
screen-film imaging chain. In a clinical setting, both the digital subtraction and
tional film-screen systems provided similar quality images and angiographic i
tion. Contrast-detail curves demonstrated that digital subtraction angiography
formed conventional film technique for low-contrast objects. Digital subtrac
giography also reduced the time required to obtain the angiogram, markedly
film cost, and lowered the contrast agent burden.

Digital subtraction imaging of the extra- and intracranial cerebral vasc
after intravenous injections of contrast material is becoming an esta
screening procedure [1–3]. Patient motion, superimposition of multiple
contrast agent burden, and suboptimal resolution [4] restrict the diagnost
of this method. Early work has suggested, however, that digital sub
imaging of intraarterial contrast injections can provide images of su
diagnostic quality to obviate conventional film-screen angiography, thus r
film cost, and possibly decreasing time required for the examination [5,
4 months, we have evaluated intraarterial cerebral digital subtraction angi
(DSA). In selected instances, a comparison of digital and film-screen angi
was made in the same patient. In addition, quantitative measurements o
resolution and contrast sensitivity were obtained for both the digital a
screen systems.



### Subjects and Methods

*Equipment*

The DSA unit (DF 100, Di
which included a progressive
interfaced with a 9-inch- (22
(Fluoricon 300, G.E. Medical
x-ray tube (Maxi 100, G.E. M
600 mA, 0.013–0.030 sec. M
camera (Matrix Instruments).
Conventional 1.8–2× mag
and Cronex 4 film (duPont, Ir
125, G.E. Medical Systems).

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[1] Department of Radiology, San Francisco General Hospital, 1001 Potrero Ave., San Francisco, CA 94110. Address reprint requests to M. Brant Zawadzki.

[2] Department of Radiology, University of California Medical Center, San Francisco, CA 94143.

[3] Department of Radiology, Mt. Zion Hospital, San Francisco, CA 94120.

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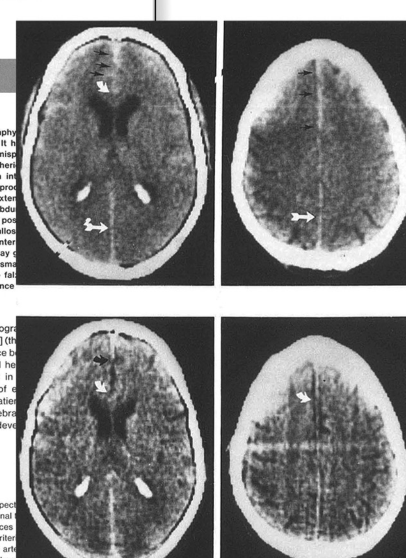
## Falx and Interhemispheric Fissure on Axial CT: II. Recognition and Differentiation of Interhemispheric Subarachnoid and Subdural Hemorrhage

Robert D. Zimmerman[1]
Eric J. Russell[2]
Emily Yurberg[1]
Norman E. Leeds[1]

Interhemispheric hyperdensity or unenhanced computed tomography
considered a sign of subarachnoid hemorrhage, the "falx sign." It h
identified as a normal feature and has also been seen with interhemisp
hemorrhage. To determine the differential features of interhemispheri
50 patients with subarachnoid hemorrhage and 32 patients with int
subdural hematomas were reviewed. Subarachnoid hemorrhage prod
interhemispheric hyperdensity only, with a zigzag contour and exten
calvarium to the rostrum of the corpus callosum. Interhemispheric subdu
produce unilateral crescentic hyperdensities that are largest in the pos
part of the fissure, behind and above the splenium of the corpus callos
spheric hyperdensity in children is more complex. Because the anter
fissure is narrow in younger patients, subarachnoid hemorrhage may g
Likewise, interhemispheric subdural hematomas in children are sma
difficult to recognize. They produce asymmetric thickening of the fal
extension over the tentorium. They are, however, of great significance
generally seen in abused patients and carry a poor prognosis.

Interhemispheric hyperdensity on unenhanced computed tomogra
originally described as a sign of subarachnoid hemorrhage [1–4] (th
[4], but other causes of interhemispheric hyperdensity have since b
including the normal falx [5–7] and interhemispheric subdural he
We have also noted transient interhemispheric hyperdensity in
cerebral edema. To determine the differential CT features of e
conditions, 50 patients with subarachnoid hemorrhage, 32 patier
hemispheric subdural hematomas, and three children with cerebra
evaluated. On the basis of this material, criteria have been deve
differentiation of these processes from the normal falx.



### Materials and Methods

*Subarachnoid Hemorrhage*

CT scans of 50 patients with subarachnoid hemorrhage were retrospect
Criteria for selection were: (1) initial scan within 3 days of ictus; (2) spinal
hemorrhage; and (3) CT evidence of blood within subarachnoid spaces
interhemispheric fissure). In addition, at least one of the following criter
angiographic evidence of a source of hemorrhage (e.g., aneurysm or arte
formation [AVM] or (2) surgical and/or postmortem confirmation of hem
were 23 males and 27 females, varying from 3 months to 81 years of ag
were obtained in 24 patients. The various causes of hemorrhage are listed in table 1.
Findings in this group were compared with those in 200 normal patients (see part 1 of this
article [5]).

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[1]Department of Radiology, Montefiore Hospital and Medical Center, 111 E. 210th St., Bronx, NY 10467. Address reprint requests to R. D. Zimmerman.

[2]Department of Radiology, Rush Presbyterian–St. Luke's Medical Center, Chicago, IL 60612.

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