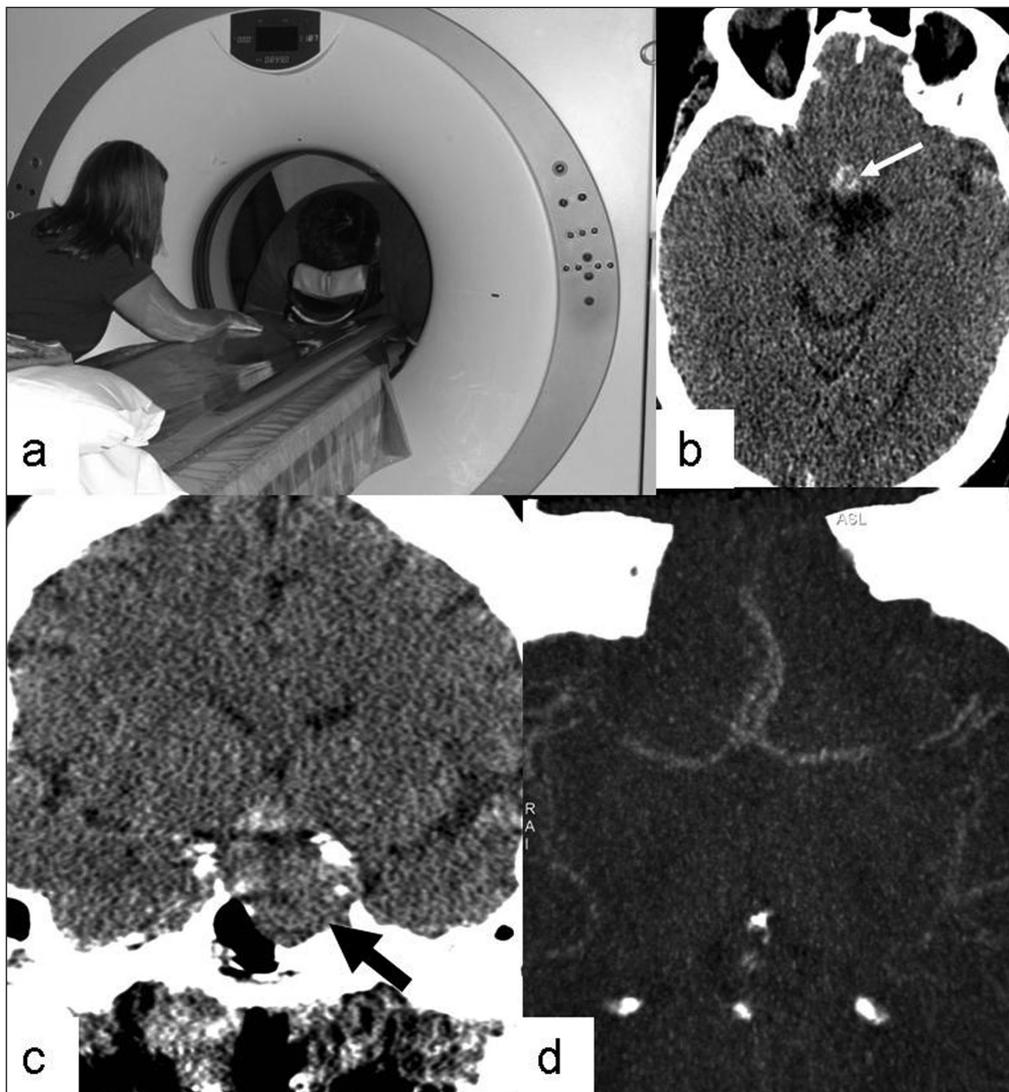


**LETTERS TO THE EDITOR****TO THE EDITOR****Technique for Plain CT and CT Angiogram of the Head in an Obese Patient****BACKGROUND**

The increase in obesity in the general population brings more frequent challenges in imaging, as an increasing number of patients exceed the weight or girth limits of existing computed tomogram (CT) or magnetic resonance (MR) scanners. We describe a technique used for plain CT and CT angiogram of the head in a morbidly obese patient.

**CASE REPORT**

A 46-year-old man presented to the emergency department describing sudden onset headache, described as the worst headache of his life and associated with nausea and vomiting. He had a complete left third cranial nerve palsy. The working diagnosis was subarachnoid haemorrhage, possibly from rupture of a left posterior communicating artery aneurysm. To confirm the diagnosis, CT head and/or lumbar puncture were contemplated. However, the patient was 6 feet 6 inches tall, and weighed 560 lbs. Lumbar puncture was considered and felt to represent a significant technical challenge. Some form of



**Figure:** (a) Patients' head position in the CT gantry. (b) Subarachnoid hemorrhage in the suprasellar cistern and anterior interhemispheric fissure (white arrows). (c) Large sellar-suprasellar mass suggestive of pituitary macroadenoma extending to the left cavernous sinus region (black arrow). (d) CT angiogram showing no aneurysm.

neuroimaging was contemplated, but the weight limits for the tables in our CT and MR scanners are 485 lb and 350 lb respectively and the girth of the patient would also have precluded MR imaging. Using a veterinary scanner was considered; however, the nearest one was over 600 kilometres away.

We asked the patient if he could put his head in the gantry while standing and bending forward behind the CT gantry. The patient had been medicated for nausea, and was alert, oriented and very cooperative; he agreed to attempt it. To better enable the patient to do this, we chose the CT scanner which had a narrower gantry (Siemens Sensation 64). We asked the patient to stand behind the CT gantry and place his head into the headrest of the scanning table (Figure 1a). The patient was told about the table movement with the scan, and allowed his head to move with the slow movement of the table. The images were acquired in the caudo-cranial direction, with the patient position designated as face down and leg first. Helical imaging was used to reduce movement artefact.

The images showed minimal motion artefact but were adequate for the diagnosis of haemorrhage in the suprasellar cistern and anterior interhemispheric fissure (Figure 1b), along with a large sellar-suprasellar mass, possibly pituitary macroadenoma, extending towards the left cavernous sinus (Figure 1c). The haemorrhage could be secondary to pituitary apoplexy, or could still be aneurysmal. A CT angiogram was felt necessary to answer this question. The table movement and expected sensation during the CT angiogram was discussed with the patient, and once again he agreed to proceed. The patient was placed in the same position behind the gantry (Figure 1a) and intravenous contrast media was injected to acquire the CT angiogram. Timing had to be estimated. The images were suboptimal due to motion artefact. A possible anterior communicating (ACom) artery aneurysm was suspected, which in retrospect was not present (Figure 1d). The patient underwent left pterional craniotomy and resection of tumor with direct decompression of the optic nerves, optic chiasm, and left

oculomotor nerve which was compressed between the skull and the hemorrhagic tumor. The region of the anterior communicating artery was explored intraoperatively and no aneurysm was seen. The third nerve palsy recovered completely.

## DISCUSSION

The current CT and MRI scanners in our institute have a weight limit of 485 lb and 350 lb respectively. With the increasing incidence of obesity in North America, we require new imaging solutions for patients who exceed these limits. A mobile CT scanner or an open MR scanner may be an option in these patients. Manufacturers may also consider making scanners with a mobile gantry and static patient table in the future. These will be useful even in injured or unconscious patients who are not able to stand. In cooperative patients who can stand, our method can be used with any existing CT scanner to obtain a plain head CT as well as more elaborate imaging such as CT angiogram of the head. Similar technique has been previously reported in the literature where only plain head CT was done using the standing technique.<sup>1</sup>

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*Jai Jai Shiva Shankar, Gwynedd Pickett, Darryn Receveur  
QE II Hospital, Halifax, Nova Scotia, Canada  
Email: shivajai1@rediffmail.com*

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## TO THE EDITOR

### Chemotherapy-Associated Steatohepatitis with Temozolomide and Dexamethasone

The addition of temozolomide (TMZ) to the therapeutic armamentarium of glioblastoma multiforme (GBM) over the past decade has been a significant clinical advance. Used concurrently with radiation therapy and adjuvantly thereafter, TMZ is a well-tolerated oral therapy which provides meaningful clinical and survival benefits in patients with GBM. As TMZ has been associated with hepatotoxicity, oncologists commonly monitor liver function tests (LFT's) as a surrogate marker of liver health. Occasionally, dose reductions and/or brief drug holidays are required in order to reverse the transaminitis and potentially permanent hepatic dysfunction.<sup>1</sup>

The most severe forms of chemotherapy-induced liver injury can manifest as either steatohepatitis or vascular sinusoidal

damage. The histologic pattern of injury in chemotherapy-associated steatohepatitis (CASH) resembles findings in non-alcoholic steatohepatitis (NASH), a form of steatohepatitis described in patients with obesity, dyslipidemia and diabetes. To date, CASH has been mainly characterized in colorectal cancer, where pre-operative irinotecan was associated with a 20% incidence of steatohepatitis.<sup>2</sup> In this report, we present the first known description of CASH attributable to concurrent TMZ and dexamethasone use in a patient with GBM.

## CASE HISTORY

A previously healthy 46-year-old male, who took no regular medications, presented with progressive word-finding difficulties and dysgraphia. Family history was remarkable for type 2 diabetes mellitus and a history of GBM diagnosed in his father. Physical examination was unremarkable, and revealed a