

Central Nervous System

Seed migration to the spinal canal after postresection brachytherapy to treat a large brain metastasis

Cole B. Hirschfeld¹, Theodore H. Schwartz^{2,3,4}, Bhupesh Parashar⁵, A. Gabriella Wernicke^{2,5,*}¹Weill Cornell Medical College, New York, NY²Department of Neurosurgery, Brain and Spine Center, Weill Cornell Medical College/NewYork-Presbyterian Hospital, New York, NY³Department of Otolaryngology, Weill Cornell Medical College/NewYork-Presbyterian Hospital, New York, NY⁴Department of Neuroscience, Weill Cornell Medical College/NewYork-Presbyterian Hospital, New York, NY⁵Department of Radiation Oncology, Stinch Radiation Oncology, Weill Cornell Medical College/NewYork-Presbyterian Hospital, New York, NY

ABSTRACT

PURPOSE: Seed migration after interstitial prostate brachytherapy has been well documented in the literature. However, there have been no detailed reports of seed migration after permanent interstitial brachytherapy to treat cerebral malignancies. In this article, the authors report a rare case of seed migration after adjuvant cesium-131 (¹³¹Cs) brachytherapy was used to treat a large paraventricular brain metastasis.

METHODS AND MATERIALS: The patient was a 63-year-old man with a 5.8-cm right frontal metastasis abutting the right lateral ventricle and causing severe edema and mass effect. The patient was enrolled in an ongoing clinical trial at our institution to receive permanent intraoperative ¹³¹Cs brachytherapy in an effort to prevent tumor recurrence in the resection cavity. Stranded seeds were covered with Surgicel, and the cavity was filled with Tisseel to prevent seed migration.

RESULTS: Imaging obtained at 54 days postsurgery showed no seed migration, but imaging obtained at 158 days revealed 12 brachytherapy seeds in the spinal canal from T11 to S2. The seeds were left in place because they were inactive at this time due to the short half-life of ¹³¹Cs (9.7 days); they remained stable on followup imaging, and the patient was asymptomatic.

CONCLUSIONS: Although the clinical consequences remain unclear, the migration of inactive seeds is not currently considered to be a complication of intracerebral brachytherapy and we do not believe that additional measures must be taken to prevent it. © 2016 American Brachytherapy Society. Published by Elsevier Inc. All rights reserved.

Keywords:

Brachytherapy; Brain; Metastasis; Cs-131; Seed; Migration

Introduction

Seed migration is a well-documented complication of interstitial prostate brachytherapy. Occurring in up to 36% of patients, prostate brachytherapy seeds can embolize

to the chest, abdomen, and pelvis, with venous migration thought to be the likely route of transmission in most cases (1). Permanent brachytherapy implantation is also used as adjuvant radiotherapy after the resection of brain tumors. The clinical consequences of seed migration in this setting are uncertain, but physical- and radiation-induced damage to the central nervous system are serious complications that should be considered. Stereotactic radiosurgery has become the most popular postresection adjuvant therapy due to its wider availability and excellent local control rates. However, intraoperative interstitial brachytherapy may offer therapeutic advantages for maintaining local control of large resection cavities because the radiation is delivered more homogeneously to large and irregularly shaped cavities (2, 3). Furthermore, there is a delay in postresection adjuvant radiation with stereotactic radiosurgery as patients must wait for adequate wound healing before receiving therapy, whereas brachytherapy offers immediate adjuvant radiation

Received 2 April 2016; received in revised form 4 June 2016; accepted 18 June 2016.

Funding: AGW received grant from National Institutes of Health (KL2 grant 3KL2RR024997); CBH was funded by Clinical Translational Science Center (UL1-TR000457-06). Research reported in this publication was supported in part by the National Center for Advancing Translational Sciences of the National Institutes of Health under award number UL1TR000457.

Conflict of interest: None.

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

* Corresponding author. Stinch Radiation Oncology, Weill Medical College of Cornell University, 525 East 68th Street, New York, NY 10065. Tel.: (212)-746-3641; fax: (212)-746-8749.

E-mail address: gaw9008@med.cornell.edu (A.G. Wernicke).

to postresection tumor beds. This case report details the migration of cesium-131 (^{131}Cs) stranded seeds from an intraparenchymal brain location into the spinal canal after resection and permanent implantation to treat a large cerebral metastasis.

Case report

Preoperative evaluation

A 63-year-old man with a 44 pack-year smoking history and recent completion of chemotherapy and esophagectomy

for esophageal adenocarcinoma presented to our clinic with the chief complaint of 2 weeks of worsening mental status and right eye pressure. On examination, the patient displayed dense expressive aphasia, able to answer questions only when provided with answer choices. He also had a component of receptive aphasia as he was not able to follow two-step commands. He failed to name objects (0/3), could not repeat sentences, and displayed considerable weakness and frailty. MRI revealed a large right frontal mass measuring 5.8 cm in maximum diameter with heterogeneous T1- and T2-weighted signal intensity (Fig. 1a). Significant vasogenic edema was seen in the right frontal lobe, with

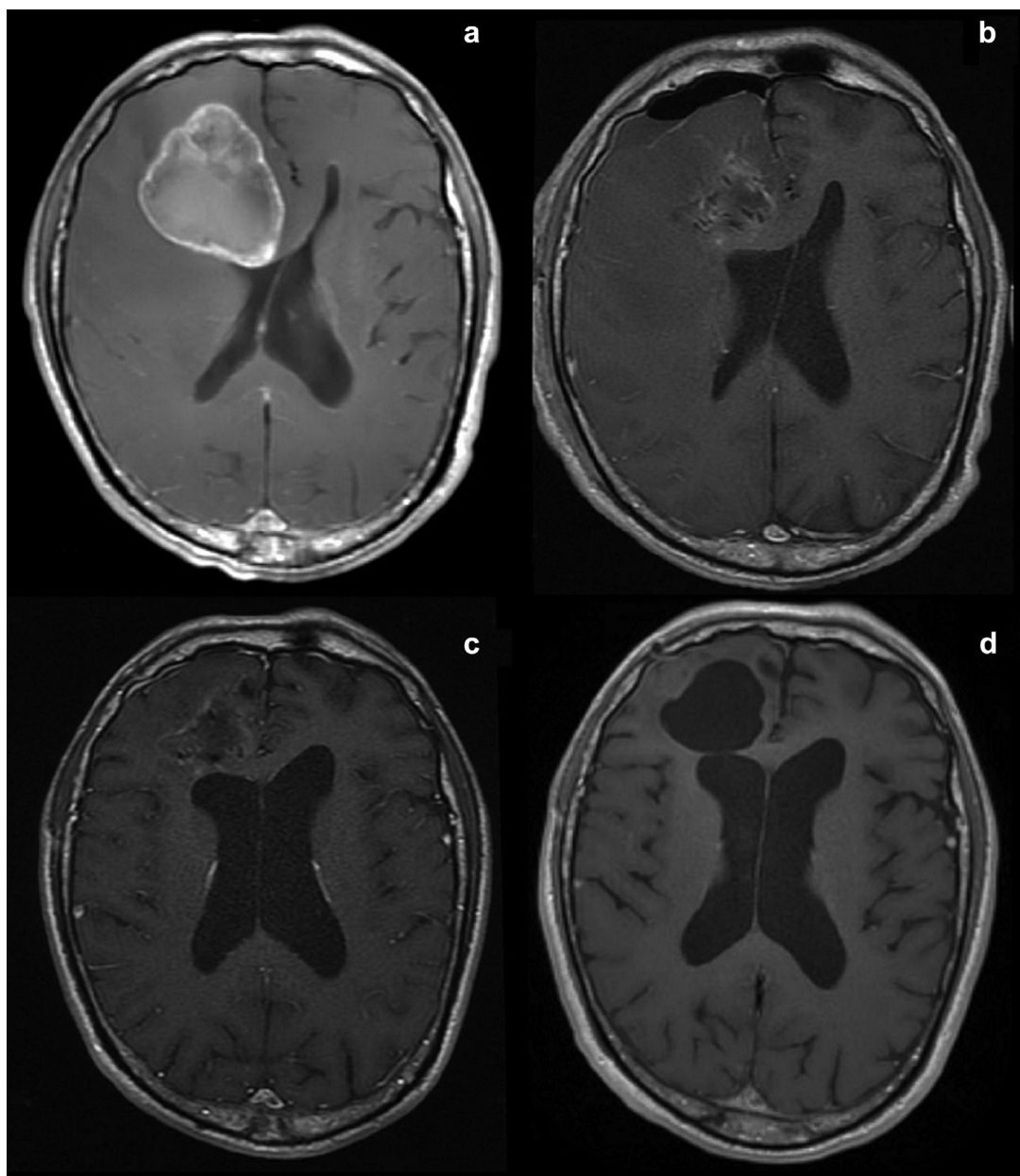


Fig. 1. Preoperative and postoperative MRI images of the brain from axial T1-weighted contrast enhanced series. (a) 5.8-cm-diameter tumor 1 day before surgery. (b) Resection cavity with ^{131}Cs seeds on postoperative Day 1 demonstrating proximity of seeds to the right lateral ventricle. (c) Resection cavity with ^{131}Cs seeds on postoperative Day 54. (d) Resection cavity with ^{131}Cs seeds on postoperative Day 219.

Download English Version:

<https://daneshyari.com/en/article/3976439>

Download Persian Version:

<https://daneshyari.com/article/3976439>

[Daneshyari.com](https://daneshyari.com)