

Stereotactic Radiation as Possible Salvage Therapy for Multiply Recurrent Rathke Cleft Cysts

Pankaj Kumar Agarwalla MD; Matthew J Koch MD; Trevor Royce MD; Jay Loeffler; Brooke Swearingen MD Departments of Neurosurgery and Radiation Oncology Massachusetts General Hospital Harvard Medical School Boston, Massachusetts

Introduction

Rathke cleft cysts (RCC) are common, sellar-based cystic lesions that are usually incidental findings, but occasionally cause significant visual and/or endocrine problems. Despite repeat surgical drainage, a proportion of cysts can recur. The standard treatment for recurrent cysts is attempted removal, but we hypothesize stereotactic radiation therapy can be an effective salvage therapy in these challenging, recurrent cases.

Methods

Case records of patients with multiply recurrent RCC at our institution were reviewed from 2005 until the present. Descriptive statistics were performed.

Conclusions

Stereotactic radiotherapy is an effective salvage treatment for recurrent, symptomatic RCC refractory to multiple drainages. Rapidly recurring cysts may require drainage after XRT, since radiation effect may be delayed. All patients had durable remission with improvement in preoperative symptoms. Radiotherapy can be an adjunct or alternative to an attempt at complete cyst removal.

Results

Out of 130 cyst drainage operations since 2005, six patients had multiply recurrent refractory RCC and underwent salvage radiotherapy. In five cases, biopsy of the cyst wall yielded epithelial lining consistent with RCC wall. In only one case, no lining was obtained but pathological analysis of the fluid contents was consistent with RCC. All six patients had immediate improvement in symptoms after their initial surgery but subsequently developed symptomatic early recurrence, necessitating at least one additional surgery. Median number of surgeries prior to radiation was 3 (range 2-4). Four patients required cyst drainage for symptom control immediately prior to radiation therapy. Four patients underwent LINAC-based radiotherapy while the other two had proton radiotherapy (stereotactic radiation; dose: 45 Gy in 1.8 Gy/fraction). Median follow-up after radiation was 47 months (range 14 -144).

Two patients required repeat drainage after radiation therapy: one patient had only one surgery within one year after radiation and has been recurrence-free for 12 months, while the other had two surgeries immediately after radiation therapy and a third surgery approximately 5 years later. This latter patient has been recurrence-free for approximately 7 years after the last surgery. Only one patient developed endocrine deficits after radiation (hypothyroidism and hypoadrenalism).



Swim lane-style plot depicting individual patient timelines in relation to date of salvage radiotherapy. Small circles represent a surgery timepoint and small "x" represents time of last follow-up. The red circles represent surgery after radiotherapy.

Learning Objectives

Multiply recurrent rathke cleft cysts pose a clinical dilemma as more aggressive attempts at cyst removal incur additional risk. Stereotactic radiotherapy at 45 Gray (1.8 Gy/fraction) is an effective salvage treatment for multiply recurrent rathke cleft cysts.