

The nuances of brachytherapy taught by teachers from beyond: Questionnaire-based assessment of the first cadaveric hands-on brachytherapy workshop in India

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ABSTRACT

PURPOSE: A questionnaire-based assessment of a cohort of young radiation oncologists attending the first human cadaveric hands-on brachytherapy workshop in India.

METHODS AND MATERIALS: The cadaveric workshop for hands-on training in head/neck and gynecologic cancers was a novel process conducted at M.S. Ramaiah Medical College and Hospital, for which 30 attendees from all regions of India took part with an opportunity to interact with experienced resource persons, individually perform the procedure, and indulge in all aspects of brachytherapy process. The questionnaire was part of the workshop and enquired on common practices for head/neck and gynecologic brachytherapy followed by the attendees at their hospitals and their opinion on avenues for learning the skill of brachytherapy and its future as a therapeutic modality.

RESULTS: Twenty-seven of thirty attendees were practicing brachytherapy at their centers out of which only 14 (46%) were doing head/neck brachytherapy. In gynecologic procedures, 89% were performing only intracavitary brachytherapy. Twenty attendees (66%) felt lack of expertise was the primary reason for dwindling brachytherapy practice in India. Ten (33%) of them felt that advancements in external radiotherapy were the second major cause for it. Some less important reasons given were lack of suitable cases, fear of toxicity, and reduced remuneration.

CONCLUSIONS: Cadaveric brachytherapy workshops may be a practical and cost-effective method to inculcate this unique skill set in the next generation of radiation oncologists. This questionnaire-based assessment has tried to validate this opinion. © 2016 American Brachytherapy Society. Published by Elsevier Inc. All rights reserved.

Keywords:

Brachytherapy; Cadaveric workshop; Hands-on training; Head and neck cancer; Gynecologic cancer; Radiotherapy

Introduction

Brachytherapy is a therapeutic modality wherein radioactive sources are placed within or in proximity to the tumor to allow high doses to the disease and minimal dose to surrounding normal tissues. It is considered by many to be the first and probably the most conformal form of radiotherapy. However, in recent years, due to advent of

specialized technology for external beam radiotherapy, costing and technical considerations as well as a steady decline in the gaining of knowledge and skill required, brachytherapy as a modality has taken a back seat. Some of the commonest causes for young radiation oncologists to not pursue this modality have been lack of directed teaching by experts in the field and apprehension due to minimal practical/clinical exposure to this skill set. Hence, we at the M.S. Ramaiah Medical College and Hospital used the available human cadaveric laboratory at our institute to conduct the first of its kind hands-on workshop in brachytherapy for head and neck and gynecologic tumors. As part of the workshop, a questionnaire-based assessment of the attendees was done to evaluate current brachytherapy practices in young radiation oncologists in India.

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Fig. 1. The human cadaveric laboratory setup.

The concept

In surgical practice, cadaveric training remains the gold standard before applying it on the live patient. The value of rehearsal on cadavers before proceeding to supervised live patient procedures and ultimately independent practice is intuitively acknowledged (1). However, this concept is new to brachytherapy, with the regular hands-on workshops mostly providing theoretical background and a visual practical demonstration. The essential requirement for learning and performing any invasive procedure would entail getting a “feel for things” and alleviating the fear of doing the procedure. This is how the concept for this workshop materialized.

The human cadaveric laboratory

M.S. Ramaiah Medical College and Hospital is a tertiary care center with an active postgraduate training program in Bengaluru, India. Cadaver surgery and research laboratory is housed under the advanced learning center along with tissue bank, medical and surgical skill unit, multimedia learning center, video-conferencing facility, and other such unique teaching avenues for a wholesome experience for students as well as qualified professionals. The center provides specially prepared cadavers with an intention to give an opportunity to learn in a “near-life” situation. Laboratory area (Fig. 1) has 16 tables with operating room like

workstations with radiolucent procedure tables, audiovisual monitors on demo tables, high-definition video, imaging facility, and operating microscopes. To date, 350 workshops have been conducted mainly in orthopedics, oromaxillo facial surgery, and neurosurgery.

Methods and materials

The workshop

Logistics and planning

This being a novel idea and a first time experience for everyone involved; we decided to keep things simple and on a smaller scale. However, to provide the participants a complete understanding of the process of brachytherapy, all possible learning options were explored and incorporated. To enhance the learning opportunities of the workshop, two senior radiation oncologists with more than 3 decades of experience in performing gynecologic and head/neck brachytherapy were included as resource persons. The upper limit for number of attendees was fixed for 30 people with two individuals per cadaver. Cadavers were prepared using Thiel (soft) embalming technique which has the advantage of no odor, low formalin, and retaining flexibility of the body. It should be noted here that none of the cadavers had the cancers being simulated. Each individual table was provided with a complete set of brachytherapy applicators. Interesting learning modules such as case scenarios, in-room interactions with resource persons, per-op appearance and feel of needles in relation to critical structures, postprocedure imaging of cadaver, and multiple treatment planning stations were arranged to allow the attendees to maximize their workshop experience. The workshop was conducted over 2 days in February 2016.

Questionnaire

A short list of questions was posed to these 30 attendees to record their professional background, practice, and expectations before the start of the program. The details are in Table 1.

Table 1
Questionnaire with the replies received

Question posed	Replies given			
What is your official position?	Consultant—20; senior resident—3; junior resident—7			
Total number of cases at your center/yr	<100 cases/yr—1; >100 cases/yr—29			
Do you practice brachytherapy?	Yes—27; no—3			
How many practice head and neck brachytherapy?	14			
No. of brachytherapy cases/yr		<50 cases/yr	>50 cases/yr	>100 cases/yr
	Head/neck	14	0	0
	Gynecologic	16	0	11
In gynecologic cancers, which implant?	Intracavitary BT—24; interstitial BT—03			
Reasons for dwindling brachytherapy practice?	Lack of suitable cases—06; advancements in external radiotherapy—10; reduced remuneration—4; fear of toxicity—4; lack of expertise—20			
Have you attended brachytherapy workshop earlier?	Yes—08; no—22			

BT = brachytherapy.

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