Brachytherapy in the Treatment of Head and Neck Cancer

Review Article [1] | October 01, 2002
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Drs. Quon and Harrison have written an excellent review on the role of brachytherapy in the management of head and neck cancer. Brachytherapy is a time-honored technique, and the authors have carefully reviewed the pertinent literature extolling its virtues. However, there are many papers that fail to document efficacy of brachytherapy over conventional techniques, demonstrating that, similar to surgery, the technique is both patient- and operator-dependent.

The 'Craft of Medicine'

Some radiation oncologists utilizing brachytherapy techniques can do things that others cannot—they are just better at the craft. As with any surgical procedure, there is a learning curve for obtaining the best possible results, and those doing a higher volume of brachytherapy implants will more likely (although not necessarily) achieve better results than those doing only a few cases per year. It is not only that the experienced brachytherapist knows better when and how to place an implant, but also, when not to do so. These important variables are difficult to quantify but are responsible for one center obtaining 40% 5-year local control rates while another achieves 75%, seemingly doing the same thing. Data manipulation is not the cause of these discrepancies—it is the "craft of medicine" that is operational.

Differences in Technique

One aspect of the authors’ technique that I would question is the need to wait 5 or more days after placing an intraoperative implant before loading the catheters and delivering radiation. The authors claim that this allows time for fibrinogenesis, thereby preventing wound complications. The wound has its greatest tensile strength immediately after wound closure; the tensile strength of wounds at 5 to 10 days postoperatively is significantly lower. Also, the risk of wound infection increases with the length of time that the nylon catheters are in place.

As a general rule, we load the catheters on the first or second postoperative day, as soon as the patient is physiologically stable and able to be transported to our radiation therapy facility. A notable exception to that rule is if the patient has developed significant postoperative swelling in the implanted area. Finally, the use of permanent implants (eg, iodine-125 seeds) is associated with increased hazard both to the radiation oncologist performing the implant and to the surgeons closing the wound.

Future Directions

Newer developments such as intensity-modulated radiation therapy (IMRT) and stereotactic radiation therapy (SR) will probably make brachytherapy techniques largely obsolete, assuming they compete favorably with the local control rates achieved by brachytherapy. IMRT and SR will be easier to teach residents than implantation of seeds or afterloading catheters. Brachytherapy-related problems such as seed availability (rarely an issue), isolation of the patient from health-care workers and family, and hazards to the implanter and/or surgeon are not associated with IMRT or SR.

Again, I salute the authors for a very nice review.

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