Dr Martin: How Are We Doing in 2000?

Hayes Martin Lecture

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NEW YORK—Hayes Martin, renowned surgeon, died today in Memorial Hospital at the age of 85. He was appointed Chief of the Head and Neck Surgery Section at Memorial Hospital in 1930. In 1942, he became president of the American Radium Society. He is also founder and four-time president of the Society of Head and Neck Surgeons—1954 through 1957. Although he never presided over the James Ewing Society, he was the James Ewing Lecturer in 1952 and received the Lucy Wortham James Award in 1961. He is survived by his wife and son.

Some 70 years ago, Dr Hayes Martin emerged front stage on the medical scene. He was more than we could write about or read in an obituary. He was a force—an energetic presence. I have asked myself many times why. Because I never met him, I can only speculate, based on what I have heard from those who knew him and what I have read about him, while at the same time trying to visualize his influence in the milieu of his times. According to television news anchor Tom Brokaw, who wrote a book by this title, he belonged to The Greatest Generation ever. He practiced medicine during times of great stress and turmoil throughout the world. Was he special because his appearance on the oncology scene was at the right place and at the right time? Was the practice of head and neck surgery in such a state of disarray before his time? Did he bring to it a sense of discipline? Was he unique because he was a zealot, a perfectionist, and a visionary? Did he intimidate and inspire? All these things contributed to the role he played, but I think he is remembered today and always will have an honored place in our history because he turned the ship of head and neck cancer care and charted a new course for us. He was to the practice of head and neck surgery what Babe Ruth was to baseball.

Dr Martin used his considerable writing ability to document his accomplishments because he believed that this was a means by which academics can promote their work and themselves. Because part of the value of a paper is a personal perception by its author, I asked all current chairs of otolaryngology programs throughout the country, as well as some of the directors of their training programs, to tell me: “What was your most important contribution to the literature? What paper most influenced your practice of your specialty and also gave you recognition, prestige, or promoted your career?” I wanted to get a sense of what, specifically, was the type of publication that meant the most to some of the most successful people in academic otolaryngology. I thank each of you who took the time to think about it and to respond.

One hundred five inquiries garnered 55 responses. In the interest of time, I will share with you only some of the data. Obviously, not all chairs and directors focused on oncology, but cancer-related articles accounted for 53% (29/55) of the total. Twelve respondents (22%) said that their best paper came from their triologic thesis, and one half of these were related to cancer. By far, most papers, 41 of 55, were related to clinical topics. Eleven of the papers reported clinical research, and only 4 focused on basic science studies. The number of peer-reviewed articles published by these physicians ranged from 15 to 284, with a median of 75. The most popular journal in which to publish (58% of articles) was, by far, Laryngoscope. Other venues of publication were Annals of Otolaryngology, Rhinology and Laryngology, Archives of Otolaryngology—Head & Neck Surgery,

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however, surgical intervention can only be regarded as an operation. Under the best conditions, means of arresting the progress of cancer of the tongue opened to "curing cancer"? To examine this theme, let us...
elective neck dissection, asking “is it justifiable in the treatment of cancer?” This could only be answered, he wrote, with a large series of patients treated, on the one hand, with elective dissection and, on the other, with watchful waiting. How long has it been since we have tried to include a randomized study like this in our investigations? Dr Martin, based on a retrospective review of his experience and his data, determined that elective neck dissection would benefit only 1 in 8 patients with tongue cancer, too small a number to justify radical neck dissection for all these patients. Dr Martin also stated that, because a neck dissection could be performed only once in a given area, it must be complete in that given zone. This explains why he advocated radical neck dissections. In addition, he stated: “... If the reason to do an elective dissection is because adequate follow-up cannot be done, this constitutes a confession of indolence or lack of organization.”

In 1930, the common approach was to give 1 or 2 doses of radiation to all patients with cancer immediately before and after a neck dissection. This was done based on the theory that the disease tended to disseminate during the operative procedure; if cancer cells were missed or spilled into the wound, they could be eradicated by small doses of radiation. Dr Martin took exception to this policy. “In my opinion,” he wrote, “there is no sound evidence that this small dose can produce any deterrent effect which would in any way modify the postoperative course.” Dr Martin did not mince words. Dr Gilbert Fletcher, a world-renowned radiotherapist at The University of Texas M. D. Anderson Cancer Center, Houston, would later add radiobiologic confirmation to Dr Martin’s suspicions, showing that it takes a minimum of 50 Gy to effectively eradicate microscopic disease. Dr Martin did suggest, however, that any unresectable gross disease could be treated with a heavy dose of radium seeds. These radium seeds were routinely available in the operating rooms at Memorial Hospital for just such a contingency in all cases of neck dissection.

One glaring omission in all of Dr Martin’s publications is the absence of any TNM staging system. I am told that he was adamantly opposed to using this system and, until the end of his career, was skeptical of its benefit. I suspect he believed that the system did not address the biologic behavior of the cancer, and, I must admit, I think that he was probably right.

One way to know whether we are progressing in our care of the patient with head and neck cancer is to compare the survival figures of the 1930s and 1940s with those of the 1980s and 1990s. I realize this is a hazardous thing to do without taking into account all of the variables, but I believe we can at least be in the ballpark. Dr Martin was the absolute best in reporting results in a format that is comparable to today’s data analysis, although many of the definitions of survival used in publications today, such as determine survival, disease-specific survival, and relapse-free survival, are not comparable. In the 1940s, the level of sophistication of data reporting was the patient’s 5-year status—“alive” or “dead” or “missing in action.”

Using the tongue as a comparison, for instance, treatment in the 1940s was a glossectomy without elective neck dissection. If nodes were initially involved, external radiation was used. In 2000, the treatment is somewhat different: we advocate surgery as initial treatment for all tumor stages and elective neck dissection depending on the thickness of the primary tumor. We suggest the use of postoperative radiation if certain adverse clinical factors are identified after the operation. How do the results compare?

In 1940, the 5-year survival for tongue cancer was 25% for all tumor stages. The current 5-year absolute survival for all tumor stages in the United States is 37%, surprisingly similar. Consequently, after 60 years of trial and error and the use of various combinations of therapy, we have hardly changed the 5-year survival rate. Treatment of squamous cell carcinoma of the floor of mouth during the same earlier period for all tumor stages also resulted in an overall 5-year survival of 25%. The absolute 5-year survival of patients with floor of mouth carcinoma today is 43%. Multimodality therapy has brought only modest improvement.

The study by Johnson and Martin, published in 1943, reported a 26% 5-year survival in 57 patients with cancer of the lower gum, the best results at that time. In 1981, almost 40 years later, the 5-year absolute survival for all tumor stages was 40% in a study of 61 patients described by Spiro. The 25 deaths included 14 patients who died of second primaries or intercurrent disease and 3 patients who died of distal metastasis.

The contrast between the 5-year survival rates from 1949 to 1950 and those from 1986 to 1987 is striking when larynx is the organ site. Great improvements have been achieved in the past 40 years. The 5-year survival of patients with all stages of glottic and supraglottic cancer in the United States, regardless of the type of treatment, is 55% and 47.5%, respectively. During the early years, the 5-year survival in treating patients with larynx cancer, all stages with radiation only, was 6% in France, 7% in England, and 14% in Sweden. This improvement is the result of better selection of patients for various methods of therapy, improved radiation techniques and equipment, innovative surgical procedures, and appropriate combinations of treatment modalities.

In some of his earlier writings during the 1940s, Dr Martin stated that people in the cancer field, especially at Memorial Hospital, believed that radiation would replace surgery as the preferred treatment for cancer. He recalls, regretfully, that he was born too late to have had the opportunity to perform a total laryngectomy, because it was an outdated operation.

In 1947, Dr Martin sent out a questionnaire to colleagues throughout the world, asking about the frequency of total laryngectomy. In 1952, the survey was repeated and included the frequency of partial and total laryngectomies. The replies came in from all over the world, although there were none from Russia, Czechoslovakia, or East Germany. In the United States, 846 total laryngectomies had been performed in 1947. In 1952, this had increased to 1315, an increase of 55%. Interestingly, a decrease was detected in Pittsburgh, Pa, where 47 were done in 1947, dropping to 20 in 1952. A total of 566 partial laryngectomies were done during 1952, with the highest number, 102, in Philadelphia, Pa. The question about partial laryngectomies had not been asked in
the 1947 survey.18 I believe the survey results persuaded Dr Martin that surgery for cancer of the larynx was here to stay. The functional rehabilitation of laryngectomies was one of Dr Martin’s primary concerns.19 Improvement in speech with the use of tracheoesophageal puncture, thanks to Drs Mark Singer and Eric Blum and others, has brought remarkable progress in today’s voice rehabilitation following laryngectomy.

In 1992, 697 patients with laryngeal cancer were treated with a partial laryngectomy, and 3840 patients underwent total laryngectomies.20 Interestingly, the percentage of patients who received chemoradiotherapy in 1992 was 4.4%, a marked increase from 1986, when only 2.4% received chemoradiotherapy.20 With the concept of organ preservation on the horizon, I believe Dr Martin’s concern about the diminishing role of surgery would be even more acute today.20

The development of effective chemotherapeutic agents has increased enthusiasm for organ preservation. Unfortunately, the issue of 5-year survival is still with us, and most organ preservation studies have not shown any improvement in this important factor. A meta-analysis21 published in Lancet, in March 2000, addressed the effect on survival of chemotherapy when added to locoregional treatment for squamous carcinoma of the head and neck. The conclusion was that, since the analysis showed only a small survival benefit in favor of chemotherapy, the routine use of chemotherapy is debatable. For larynx preservation, the nonsignificant effect of chemotherapy in organ-preservation strategy indicates that this procedure must remain investigational.21 An observation recorded in 1955 by Morfitt, a colleague of Dr Martin’s, is perhaps appropriate today. The word larynx, Dr Morfitt said, refers to a functioning organ and an anatomical structure. If the cartilaginous structure is destroyed by a combination of necrosis, infection, and radiation damage, the structure is no more a larynx than a gangrenous limb is a leg.17

During the 1940s, as World War II raged in Europe and the allies carried out commando raids on the shores of Italy and France, the term Commando operation was coined by the house staff at Memorial Hospital. This procedure, popularized by Dr Martin, was patterned after the destructive commando attacks (by land and sea), and it is still the operation we know today consisting of removal of the primary tumor with the mandible and nodes in the ipsilateral neck. This operation changed the outlook of the patient with cancer from the hopeless prospect of certain death to the less foreboding uncertainty of life.22 In helping his patients get through this operation, Dr Martin believed that use of a nasogastric catheter was important to provide preoperative nutritional supplement and, postoperatively, to maintain alimentation while patients were healing. Now, of course, we have established the percutaneous endoscopic gastrostomy, an epigastric catheter inserted in the stomach, as the best means of providing this nutritional support, but the concept is the same.

As time went by, Dr Martin became convinced that better locoregional control could be achieved with more aggressive surgical treatment.23 His move during the 1950s toward radical surgery was based partly on the ability to repair the defects. According to Dr Martin, the permissible limits of radical surgery of the head and neck were limited only by the removal of essential structures. Discussing his reconstructive efforts, Dr Martin observed that “progress can be achieved if better methods of wound closures are developed” and that “the cooperation between the surgeon who carries out the ablation of the cancer and the plastic surgeon is an absolute essential.”23(p335) With the advent of reconstructive procedures, such as the myocutaneous flap and, more recently, the microvascular free tissue transfer, we have risen to this challenge. Ironically, the pendulum may now be swinging back to more radical procedures because patients can be restored to an acceptable functional status with these new reconstructive procedures. But, has more surgery combined with better reconstruction improved the 5-year survival rate? In a retrospective review of the medical records of patients with T3 or T4 oral cavity squamous carcinoma treated at M. D. Anderson Cancer Center during 2 separate 5-year periods (1980-1985 and 1990-1995), the overall 5-year survival was between approximately 50% and 60% (Gary Clayman, MD, unpublished data, 2000). The patients who underwent reconstruction with pedicle flaps fared worse, with a 30% to 40% 5-year survival compared with those who had reconstruction with free flaps, skin grafts, or nothing. Consequently, even with radical surgical procedures followed by impressive functional and cosmetic restoration, we have not significantly affected these patients’ 5-year survival rate.

In honor of Dr Martin’s legacy, a lectureship was created by the Society of Head and Neck Surgeons in 1971. The first Hayes Martin Lecture was given in 1972 by MacComb, Dr Martin’s disciple and the first head and neck surgeon at M. D. Anderson Cancer Center. The occasion was the first joint meeting of all 3 cancer societies, the American Head and Neck Society, in Boca Raton, Fla. The title of MacComb’s lecture was “Diagnosis and Treatment of Metastatic Cervical Cancerous Nodes From an Unknown Primary Site.”24 He echoed Dr Martin’s plea to be cognizant of the possibility that masses in the neck may be metastases from squamous carcinoma of the upper aerodigestive tract and that, therefore, the last procedure, not the first, should be a biopsy of the node. In 1972, MacComb reported that 77.5% of patients with cancerous nodes in the neck had had 1 or more removed before referral for head and neck surgery.24 Today, almost 30 years later, we still see a rush to judgment.

At M. D. Anderson Cancer Center, in 1998, 88 patients presented with a mass in the neck and an occult or unknown primary tumor. Sixty-three patients (72%) had a fine-needle aspiration (FNA) performed before their referral, yet only 50 (57%) of the FNA procedures were diagnostic. What is more disturbing is that 25 (28%) patients had undergone an open biopsy or excision as their first diagnostic procedure, 26 years after publication of MacComb’s article (R.M.B., unpublished data, 1999). An interesting development revealed by this analysis is the creation of a new paradigm. Instead of the node biopsy being the last procedure, as Drs Martin and MacComb advocated, the use of FNA has prompted use of a biopsy as the first procedure. What actually hap-
pens, however, is that because of multiple factors, many of these FNA procedures are nondiagnostic, or insufficient tissue is obtained, and an open biopsy is performed. Ironically, we are right back to where we were in the 1970s. The use of FNA is a wonderful advance, and if done properly and interpreted correctly, it allows us to focus a workup to deduce the unknown primary tumor. But, we must demand better quality control. Reliability of FNA should eliminate the need to excise a cervical node as the first means of diagnosis. Martin and Ellis were, in fact, pioneers in the development of the needle biopsy, although they did not have the cytologic capability we have today. With positron emission tomographic scanning, we can now better locate an occult primary lesion as the origin of a metastatic node.

In April 1999, Archives of Otolaryngology—Head & Neck Surgery published a study entitled “Is Routine Follow-up Useful After Combined-Modality Therapy for Advanced Head and Neck Cancer?” According to the authors, from 1970 to 1990, only 2 of 302 patients treated with surgery and postoperative radiation survived 5 years. Has our ability to cure squamous carcinoma of the head and neck reached a plateau? In any analysis of progress concerning the treatment of patients with head and neck cancer, we must never forget the importance of metastatic disease, second cancers, and intercurrent disease. To focus only on locoregional control misses crucial aspects of survival of the patient with head and neck cancer. Disseminated disease as a manifestation of squamous carcinoma arising in the upper aerodigestive tract was rarely, if ever, mentioned in the earlier head and neck cancer literature. Orthopedics textbooks rarely included metastatic squamous carcinoma from a head and neck primary as a possible cause of pathologic fracture. I suspect it was rarely an issue because recurrent locoregional disease or lethal complications of treatment shortened the patient’s life span and reduced the time evolution for distant metastasis.

In 1920, an unpublished autopsy study of 4500 cases of squamous carcinoma of the head and neck by Dr C. F. Hitchings revealed a less than 1% incidence of distant metastasis. This study was interpreted by Dr George Crile as proof that squamous carcinoma of the upper aerodigestive tract remained localized above the clavicles in 99% of cases, even at the time of death. Dr Martin, however, questioned this study in 1941. Reviewing autopsy findings of 284 of his own patients, he found a 23% incidence of distant metastasis. Is it possible that, in the 20 years or so between these 2 autopsy studies, Dr Martin’s improvement in above-clavicle control resulted in this marked increase in systemic disease? As locoregional control methods improve, patients live longer, free of disease above the clavicles, and, consequently, are at greater risk of developing distant metastasis. Depending on the site, the incidence could be as high as 20% to 30%.

During the 1950s, 1960s, and 1970s, the combination of more conservative surgery with postoperative radiation was an attempt to improve locoregional control and reduce morbidity, which Spiro addressed in his 1993 Hayes Martin Lecture, “Less Can Mean More.” With the use of combined therapy, however, the incidence of distant metastasis increased. The explanation was that the patients with more advanced cancer received combined therapy, but I am not sure this simple explanation completely reflects a complex relationship. In the 1990s, we have had to deal with another new challenge, and an even more devastating reality, the second primary.

In the early 1950s, Slaughter and colleagues proposed the concept of “field of cancerization,” which was probably foreign to the pioneers like Dr Martin. The proposal was that second squamous carcinomas arise in the altered mucosa of the upper aerodigestive tract, esophagus, or lung. Today, we all know and are frustrated by this devastating occurrence in our patients. The usually quoted overall incidence is 4% per year: 40% developing at the head and neck site, 30% in the lung, 9% in the esophagus, and 20% in unrelated sites. In any analysis, a particularly difficult problem is to distinguish a metastatic focus of cancer to the lung from a new primary of the lung. Perhaps the use of genetic markers as fingerprints will be useful in making the distinction. Hong and coworkers are focusing on the development of vitamin A derivatives to use as a way of combating this problem. We eagerly await the outcome of their studies.

In “Changing Patterns of Failure in Advanced Head and Neck Cancer,” Vikram, reported in 1984 a study of 98 previously untreated patients seen at Memorial Hospital from 1975 through 1980. He reported a 15% locoregional failure above the clavicles and a 20% incidence of distant metastasis, with a 6% increase in second primaries. The overall 5-year disease-free survival was 50%.

Dr Mario Luna, a pathologist at M. D. Anderson Cancer Center, in 1983 reviewed autopsies of patients with head and neck squamous cancers during 2 separate periods, 1955 to 1967 and 1973 to 1983. Several interesting findings emerged from the review. The good news was: (1) locoregional failure decreased from 30% to 15%, comparable to that of the Memorial Hospital series and (2) death secondary to treatment complications decreased from 25% to 11%. The frustrating news was that distant metastasis increased from 17% to 32%, and cause of death secondary to unrelated intercurrent disease increased from 15% to 28%. The incidence of second primaries, especially in lung and esophagus, was unchanged.

Our emphasis on early detection and prevention of cancer addresses this problem. However, the effects of chemopreventive drugs are time-dependent; if their administration is stopped, the mucous membrane reverts to pretreatment status. Some tumors, regardless of how early we detect them, are biologically aggressive and result in death of the patient despite all treatments. Moreover, even if we eliminate the use of tobacco or tobacco products in society, we will not completely eliminate this problem. We are seeing increasing numbers of young patients who have no known risk factors, but who are developing aggressive squamous carcinomas of the oral cavity and, to a lesser degree, oropharynx and larynx. This is fertile ground for investigation into genetic predisposition and DNA repair defects.

A facet of our cancer-care concerns that was also not given much attention during Dr Martin’s era was the morbidity problem—the relationship of intercurrent disease to the staging and treatment of squamous carcinoma of the head and neck. Piccirillo and Feinstein have
Patients with cancer of the head and neck are usually older and have, because of the abusive effects of alcohol and tobacco, significant comorbidity. Today, with greater emphasis on ways to identify it and better methods of therapy, patients who are at high risk because of intercurrent disease may at least tolerate aggressive treatment strategies. Many of these patients, however, because of their severe comorbid conditions, do not survive long after their cancer is treated. Even though the cancer may be eradicated, they die because of organ failures unrelated to the cancer itself, but sometimes to its treatment. My experience has been that, whenever I have altered the treatment plan I consider optimal for the cancer in favor of a less rigorous secondary therapeutic option based on comorbidity findings, I have regretted it. The patient’s high-risk profile that was triggered by comorbidity factors never materialized. The patient received less than optimal therapy, the tumor recurred or never regressed, and now the patient with the same or worse comorbidity factors faces a diminished chance of cure. Consequently, I look at the comorbidity assessment and its effect on therapeutic decisions with caution. Chronological age is factored into the assessment of comorbidity, but using age alone as a contraindication when an operation promises a reasonable chance of cure or long-term palliation is a mistake. Surely, it is easier to face a risk of immediate mortality rather than to wait for an inevitable death from cancer or to accept increasingly intractable pain from pervasive illness. In discussing treatment of older patients, Dr Martin commented on how much basic difference there is between the “custom of deserting the old Indian and the policy of withholding indicated surgery for an older patient with cancer.”

Today, with attention to pertinent patient psychosocial factors, we are addressing the value of a patient’s quality of life. We are helping patients and their families cope with the chronic illness of cancer. More than ever, the often used phrase “to cure sometimes, to relieve often, but to comfort always” is appropriate. By addressing better pain control for patients with recurrent untreatable cancer and more humane terminal care through institutions such as hospice, we have improved the quality of our patients’ deaths. For the cure paradigm, death is the enemy; for the care paradigm, suffering is the enemy.

We are experiencing today something that the professor in Albom’s book Tuesdays With Morrie: An Old Man, a Young Man and Life’s Greatest Lesson describes as a “tension of opposites.” An example would be how should a psychiatrist react to a prisoner on death row who develops a psychosis? We are feeling the contradiction between the ethics of undivided loyalty to the patient and the ethics of undivided loyalty to the patient and the pressure to make clinical decisions for social purposes or on behalf of third parties. Are we caring for patients or protecting consumers? More and more, our society is asking medical schools to impart to their students the service ethic found at Disney World. It is not where you went to medical school or where you did your residency or what fellowship training or board certification you have. Quality is equated with physicians who take time to listen and care. Kassirer said it best: “If we capitulate to the ethic of the group rather than the individual and if we allow market forces to distort our ethical standards, we risk becoming economic agents instead of health care professionals. Inevitably, patients will suffer and so will a noble profession.” We must never forget the elements of professionalism: altruism, accountability, excellence, duty, honor and integrity, and respect for others.

Taking all this into consideration—locoregional control, distant metastases, second cancers, comorbidity, and the 5-year survival rate, I think the take-home message is clear. Although we have made great strides in improving the quality of our patients’ lives during the past 50 or more years, we have not progressed much in increasing the 5-year survival rate of our patients with squamous carcinoma of the upper aerodigestive tract, except as it pertains to the larynx. Because we have not improved our patients’ survival, we have focused on quality-of-life issues, saying, in effect, “if we cannot cure you, we will treat you in a way that will preserve your dignity for the days you have left,” and we hope that our approach will be perceived as compassionate and not nihilistic. Survival studies have focused on the disease-free interval as a means of showing some positive effect of therapy, while trying to disguise the fact that these patients are still dying of distant metastasis or second primary cancers.

My hope is that the new methods of gene identification and manipulation will enable us to unravel the basic causes of cancer and, in turn, will give us the means to target our therapy without significant morbidity. My fear is that we will, in this fascination with technological advancement, lose what we have accomplished in locoregional control and stray from a humble servant’s mentality in the care of our patients.

In closing, I remember that almost on this exact date 5 years ago, during the Fourth International Head and Neck Cancer Conference, in Toronto, Ontario, I stood at this podium before this audience as president of the Society of Head and Neck Surgeons and delivered the 1996 presidential address. Then, I was a member of 2 head and neck societies. Today, thanks to a visionary group led by Drs John Saunders and Charles Cummings, I am proud to say I am a member of a single, better head and neck society—the American Head and Neck Society. I have been given the great honor to give the 29th Hayes Martin Lecture during this Fifth International Head and Neck Cancer Conference. In my 1996 presidential address, I spoke of how privileged I was to have played in the major leagues of oncology on a major league team, the M. D. Anderson Cancer Center, with a host of superstars as teammates. Today, I feel as if I have been inducted into the Hall of Fame.

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REFERENCES