A Lesson in Successful Implantation

A. Norman Cranin

Last year my wife, Marilyn, discovered that she needed a replacement of her left knee. She had been having increasing difficulty with walking, had to curtail her gardening and landscaping design, and had finally found that she could no longer swim. The pain sometimes awakened her at night.

A number of consultations were arranged. We spoke only with orthopedists who limited their practices to knee and hip replacements. It turned out that each specialist restricted his therapy to a specific prosthesis (except in extreme or atypical cases). Most of the surgeons had more than one hospital affiliation, and the great majority of these institutions were general hospitals. All had departments or divisions of orthopedic surgery, and most sponsored residency-training programs.

To the uninitiated, these conditions present a satisfactory milieu at which competent joint-replacement procedures can be performed. We chose, however, a well-known surgeon who performed only knee and hip replacements and who operated at a hospital that limited itself to orthopedic surgery and had specific advanced fellowships in knee replacement. The preoperative evaluation was completed by an internist who was an attending physician at that hospital and who fully understood the intricacies of knee surgery. He was prompt, thorough, and concerned specifically with Marilyn's capabilities of surviving the planned surgery with minimum complications. He followed her throughout her hospital stay, from the presurgical holding area through the recovery room and daily (6:00 AM) bedside rounds.

Radiology was quick and skillfully completed. Blood drawing for preoperative chemistries took place at the same time and location, and Marilyn was good to go after only three hours of evaluation. Four days later, she presented herself to the admitting office. In her folder were the blood chemistry results, the physical examination report, the preoperative radiographs, and all her vital statistics. The entire process was completed in less than 10 minutes. Thirty minutes later, her gurney was wheeled into the operating room, the correct knee was marked clearly, the other knee was also appropriately labeled, and all the vital records were in the arms of the anesthesiologist who accompanied her.

Forty-five minutes later, with all skin staples in place, she was wheeled into the recovery room. Why so short a time for incision, exposure, femoral and tibial osteotomies, excision of the entire joint, perfectly angulated bone cuts, placing of the complex prosthesis with the grouting of the femoral component (a cap), insertion of the tibial component (an intramedullary, hydroxyapatite-coated projection), anatomic adjustments of the appliance, and closure?

Because of the experience of the surgeon and his team; the limited variety of surgery for which he was responsible; the plethora of

A. Norman Cranin, DDS, DEng, *is Editor-in-Chief of the* Journal of Oral Implantology.

completed procedures; and an intimate comprehension of the use of a single, well-designed device; the procedure was reduced to a virtually computerized, machine-shop operation.

The efficiency of all those who contributed to the postoperative care, from the nurses in the post-anesthesia care unit to the aides, nurses, and physiotherapists on the floor, was overwhelming in its simple, rapid, and skilled presentations. The floor was restricted to recovering knee patients only. It was easy, then, to understand why the anesthesiologists, aides, nurses, physiotherapists, and even the meal servers knew precisely what to do; their only decision-making concerned which knee had been replaced.

At precisely 10:00 AM on the fourth postoperative day, Marilyn was discharged. The mean hour on the fourth day for discharge was 10:45 AM (±20 minutes). The precision continued during the period at the rehabilitation institute: sleep and therapy hours, strict but empathetic therapists, competent nurses who were liberal with the requisite administration of narcotics, and, finally, prompt discharge on the fifth day.

It is now less than four months since Marilyn's knee was replaced. She is pain free, has function equivalent to that of the contralateral side (90° angulation), was scampering around the rocky mountains of Greece two weeks ago, swims a half mile a day, and uses stairs with the alacrity of a 10-year-old girl.

This story is a tribute to the science of total knee replacement and the precision that has resulted from excellent design, biomaterials selection, sound manufacturing practices, excellent quality control, brilliant diagnosticians and surgeons, and skilled therapists and auxiliaries. The major secret of this extraordinary success is the devoted attention given by these well-coordinated teams, all of whom have dedicated themselves to the myriad factors that comprise the successful completion of a most valuable contribution to the well-being of man. They have reduced these complexities to the simplest levels by devotedly acquiring and then applying their skills to each facet. What a lesson for all of us!