

The Problem of the Geriatric Amputee

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IT HAS been demonstrated that 70 to 90 per cent of all peacetime amputations result from gangrene in the lower extremities of elderly patients. Hansson² reported that in Sweden the amputation rate in males over 60 years of age rose from 34 per 100,000 population in 1947 to 129 per 100,000 in 1962. He predicted that those rates would continue to rise. Our experience in the United States seems to parallel that in Sweden, and therefore interest in the specific problems of the "geriatric" amputee is now high.

During the period of increasing incidence, the mortality rate following amputation for gangrene has declined sharply, from 45 per cent to approximately 5 per cent for all amputations. Furthermore, studies show that, following amputation, patients live long enough to justify every effort at their rehabilitation, and that when they effectively use a prosthesis they live longer and the remaining extremity survives longer.

For some time it has been recognized that the lower the level of a successful amputation the greater the chance that the patient will effectively use a suitable prosthesis. The most important factor in the ability of the geriatric amputee to use effectively a satisfactory prosthesis is the presence of the knee joint. In the absence of other complications, the patient who was able to walk before the onset of his disease should be able to walk with any type of satisfactory prosthesis after amputation below the knee once the stump is well healed.

It is apparent that the current problem of the geriatric amputee is not primarily one of prosthetic components, prosthesis design, fitting and alignment, or gait training. The current problem of the geriatric amputee is preservation of the knee joint.

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² Hansson, Jan, *The leg amputee*, Acta Orthop. Scand. (Suppl.), 69:1-104, 1964.

For at least 20 years literature has been available which discusses the specific indications for amputation levels of the lower extremity and details the surgical techniques necessary to ensure successful amputations at low levels in the ischemic extremity. The principles set forth in that literature became very important to surgeons who were particularly interested in amputations. Recently, as the result of the work of Burgess *et al.* on immediate postsurgical fitting and the concomitant upsurge of interest in amputations, many more surgeons have come to recognize the importance of these principles. The research project headed by Burgess and sponsored by the Prosthetic and Sensory Aids Service of the Veterans Administration, aside from its other important contributions, has done more to stimulate interest in amputations than any other single peacetime venture.

Despite the renewed interest in amputations, it is still true, unfortunately, that most amputations for gangrene are performed by surgeons who are much more interested in other problems. Far too many feel that the nature of the disease makes amputation above the knee inevitable, or that the mortality and morbidity associated with unsuccessful attempts at amputation at low levels preclude such efforts. The techniques for successful management of delayed healing are poorly understood. In many areas it is still not recognized that the problem in diabetes, leading to progressive lower-extremity tissue necrosis, is frequently uncontrolled infection, rather than ischemia.

This all suggests that in terms of man-hours, dollars, and total available facilities, great improvement in the rehabilitation of the geriatric amputee can come from a more efficient educational program which will lead to a higher incidence of successful amputations at low levels.

It has been suggested that to reach the surgeons who perform most of the amputations for gangrene there is need for a document which is generally accepted and widely distributed, and which will be read by those surgeons. In 1961 the Committee on Prosthetics Research and Development, recognizing the need for improvement in the rehabilitation of the geriatric amputee, sponsored a conference for the purpose of stimulating research in that area. The report of the conference, *The Geriatric Amputee* (NAS Publication 919), was well received, and, in addition to serving its original purpose as a reference for research personnel, has been used extensively in education and training of medical and paramedical personnel. New knowledge has made obsolete much that is contained in *The Geriatric*

Amputee, and CPRD has recommended to the Committee on Prosthetic-Orthotic Education that the necessary steps be taken to provide an authoritative document that will be useful to all who are engaged or expect to be engaged in the rehabilitation of the geriatric amputee. To this end, CPOE is calling upon a number of individuals from various disciplines with vast experience to assist in the preparation of such a document.

Surgeons need not wait, however, until publication of this volume to begin to take positive action to improve the lot of future geriatric amputees. They should review the literature and take every action possible to retain the knee joint in the geriatric case when amputation is indicated.