"The Decline and Fall of the PTB"

With Apologies to Edward Gibbon (The Decline and Fall of the Roman Empire)

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In the September, 1962 issue of the Orthopedic and Prosthetic Appliance Journal, I reported on our experience with the use of the new total contact patellar-tendon-bearing prosthesis at the Veterans Administration Regional Office Amputee Clinic in Chicago.[1] We had surveyed the patients with below-knee amputations who had received new prostheses during the period of August 1, 1960 through May 31, 1962. During this approximately one-and-a-half year period, one hundred and twelve below-knee amputees had received new prostheses. Of this group, forty-seven were issued (largely on the patient's request) a standard or "old-fashioned" type of below-knee prosthesis, while fifty-three patients were issued patellar-tendon-bearing prostheses with condylar straps. Four patients were judged to have sufficient stump problems to recommend the use of a corset and side hinges applied at the time of manufacture of the PTB prosthesis. Five patients of this group were issued slip socket prostheses. Of the fifty-three patients fitted with the patellar-tendon-bearing prosthesis, thirty-one were followed for a sufficient period to warrant an end-result evaluation. Four patients were found to have been total failures and subsequently desired to return to their old type prosthesis; of the resulting twenty-seven patients, only sixteen were found to wear their prosthesis full time, while eleven patients were wearing their prosthesis only part-time. At that time, the prescription indications for the PTB prosthesis with condylar strap were: (a) good knee ligament stability; (b) no palpable tenderness of the stump weight-bearing areas; (c) normal sensation in the skin of the stump; (d) no diabetic or severe medical problems; and (e) stumps that were four inches or longer in length. The indications that we arrived at for the prescription of a modified patellar-tendon-bearing prosthesis (with side hinges and corset) were: (a) lack of knee ligament stability; (b) excessive arthritis of the knee joints; (c) excessive tenderness of the stump weight-bearing areas; (d) lack of sensation of the skin of the stump; (e) most diabetic below-knee amputees; and (f) people whose occupation required heavy lifting.

In an attempt to further elucidate our experiences with the patellar-tendon-bearing prosthesis and calling heavily on our previously applied prescription indications, a second group of below-knee amputees were surveyed beginning June 1, 1962 and extending to May 1, 1964. In this period, a total of one hundred and forty-one new below-knee prostheses were prescribed. Of this group, seventy-seven were issued (usually on their

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demand or request) the standard or "old-fashioned" types of prostheses (thigh corset, steel hinges, open end willow sockets and single axis ankle and wood foot). Forty-five patellar-tendon-bearing prostheses with condylar straps were also prescribed as well as sixteen patellar-tendon-bearing prostheses with thigh corsets and hinges. A slip socket prosthesis was prescribed for three patients during this period. The patients who were fitted with the PTB prosthesis were further followed, both in the Amputee Clinic, where they were clinically evaluated, and also by follow-up questionnaire. Of the group of forty-five patients fitted with the patellar-tendon-bearing prosthesis with condylar strap, twenty-seven were able to be followed sufficiently to obtain some valid impressions as to their reactions to this prosthesis. Only thirteen of the twenty-seven patients reported successful full-time wear of the PTB with condylar strap. Of this group, three of the patients would like to change their SACH foot (which up to this point has been an integral part of this prosthesis) to the older single axis ankle and wood foot. One of the thirteen who were successful wearers indicated that a corset addition, however, would improve the comfort of the socket. Fourteen of the group of patients reported only part-time wear, primarily due to an inability to tolerate full weight-bearing on their stump. Several patients of this group also reported adverse reactions to the SACH foot. The patients who did not like them felt that the SACH foot was far too rigid (no matter how aligned) and preferred the freer action of the articulated foot.

SUMMARY

It would appear as though, even after approximately four years of experience in manufacturing the patellar-tendon-bearing socket, and during this time we have encountered a number of modifications and suggestions as to modifications, the private prosthetists supplying the Veterans Arministration Regional Office Amputee Clinic in Chicago, still can only satisfy less than fifty percent of the amputees who, by prescription indications, would seem to be ideal candidates for the use of this prosthesis. We still also have a number of patients who are full-time wearers of the PTB prosthesis, who if they are required to do heavy lifting activities either in their work or around the house, prefer the use of the "old-fashioned" type of prosthesis with thigh corset and hinges. It would thus appear in our hands that the patellar-tendon-bearing prosthesis with condylar strap is a very definite addition to the armamentarium for the below-knee amputee, but is certainly still *not* the complete panacea replacement for all below-knee amputees. I would still urge that the prescription indications be adhered to whenever one is attempting to solve a particular below-knee amputee's problem.

REFERENCES

1. Thompson, R. G., "The Patellar-Tendon-Bearing Total Contact Prosthesis for Below-Knee Amputees," *Orthopedic and Prosthetic Appliance Journal;* 16:238, September 1962.

AUTHOR'S NOTE: I would like to express appreciation to Mr. Edward Tomashewski and Mr. Leonard Pietrasik of the VA Chicago Regional Office Amputee Clinic for their aid in data collection.

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