

distances, as in aortorenal bypass, few problems relating to angulation or kinking have been encountered.

Nevertheless, when performing vascular anastomoses with the PTFE graft, a few special details must be observed. Only monofilament suture material (i.e., Prolene) should be used to avoid the sawing effect of braided material (i.e., silk) which causes enlargement of the needle holes. Small, tapered, non-cutting needles are used, and one must take care to follow the curvature of the needle when passing it through the graft wall. The graft should be just long enough to bridge the defect without tension at the suture line, while avoiding excessive length which may tend to make the graft kink or become angular when retraction of the surgical incision is released. When graft suturing is completed and all vascular clamps have been removed, leaks from needle puncture holes are more commonly observed with PTFE than with autogenous vascular grafts. This is easily corrected by applying oxidized cellulose (Oxycel) to the suture line and maintaining gentle pressure for approximately 10 minutes.

Our results with aortorenal bypass employing PTFE grafts are encouraging and support the continued use of this prosthetic material for replacement of the renal artery when autogenous vascular grafts are unavailable.

References

1. Lye CR, String ST, Wylie EJ, Stoney RJ. Aortorenal arterial autografts. Late observations. *Arch Surg* 1975; **110**:1321-1325.
2. Wylie EJ. Endarterectomy and autogenous arterial grafts in the surgical treatment of stenosing lesions of the renal artery. *Urol Clinics North Am* 1975; **2**:351-363.
3. Novick AC, Stewart BH, Straffon RA. Autogenous arterial grafts in the treatment of renal artery stenosis. *J Urol* 1977; **118**:919-922.
4. Straffon R, Siegel DF. Saphenous vein bypass graft in the treatment of renovascular hypertension. *Urol Clin North Am* 1975; **2**:337-350.
5. Kaufman JJ. Dacron grafts and splenorenal bypass in the surgical treatment of stenosing lesions of the renal artery. *Urol Clin North Am* 1975; **2**:365-379.
6. Kaufman JJ. Renovascular hypertension: the UCLA experience. *J Urol* 1979; **121**:139-144.
7. Novick AC, Straffon RA. Surgical treatment of renovascular hypertension. *Urol Surv* 1980; **30**:61-65.
8. Lawrie GM, Morris GC Jr, Soussou ID, et al. Late results of reconstructive surgery for renovascular disease. *Ann Surg* 1980; **191**: 528-533.
9. Haimov H, Giron F, Jacobson JH. The expanded polytetrafluoroethylene graft. Three years' experience with 362 grafts. *Arch Surg* 1979; **114**: 673-677.
10. Anderson CB, Etheredge EE, Sicard GA. One hundred polytetrafluoroethylene vascular access grafts. *Dial Transplant* 1980; **9**:237-238.
11. Mohaideen AH, Tanchajja S, Avram MM, Mainzer RA. Arteriovenous access for hemodialysis utilizing polytetrafluoroethylene grafts. *NY State J Med* 1980; **80**: 190-195.
12. Ansel AL, Johnson JM. Prevention and management of polytetrafluoroethylene graft complications in peripheral vascular reconstruction. *Am J Surg* 1982; **144**:228-230.
13. Haimov M. Clinical experience with the expanded polytetrafluoroethylene vascular prosthesis. *Angiology* 1978; **29**:1-6.
14. Johnson WC. Preliminary experience with expanded polytetrafluoroethylene grafts. *Surgery* 1979; **85**:123-128.
15. Mohring K, Asbach HW, Bersch W, Ikingier U, Schuler HW. Clinical implications of patho-morphological findings in vascular prostheses. *Proc Eur Dial Transplant Assoc* 1978; **15**:582-585.

Commentary

John A. Libertino, M.D. (Chairman, Division of Surgery, Lahey Clinic Medical Center, Burlington, Mass.): Drs. Khaul, Novick, and Coseriu have nicely demonstrated that when autogenous saphenous vein or cephalic vein is unavailable for renal revascularization, PTFE grafts are a viable, safe, effective alternative. Their 100% patency rate clearly demonstrates this conclusion.

At our renovascular center, the aortorenal saphenous vein bypass graft or alternatives, such as the splenorenal or hepatic saphenous vein bypass graft, have emerged as the preferred method of

treatment. It would appear that PTFE is preferable to Dacron when autogenous graft material is unavailable, as Dacron grafts have a higher reported thrombosis rate.

It is appropriate that this communication be included in a symposium dedicated to the memory of Dr. Bruce H. Stewart, a major innovator and contributor in the field of renovascular disease. I am certain that his colleagues at the Cleveland Clinic will continue to make major contributions to this field and to perpetuate the surgical heritage he began.