

LETTERS TO THE EDITORS

The Editors invite readers to submit letters commenting on the contents of articles that appear in the JOURNAL. Also welcome are brief communications in letter form reporting investigative or clinical observations without extensive documentation and with brief bibliography (five titles or less), not requiring peer review but open to critique by readers. Letters to the Editors should be no more than 500 words in length and they may have to be edited for publication.

Percutaneous transluminal angioplasty for emboligenic arterial lesions after radiotherapy of axillary arteries

To the Editors:

Treatments of neoplastic diseases often involve radiotherapy. One of its side effects is arterial damage.¹ Lesions in the aorta and iliac, mesenteric, pelvic, coronary, carotid, intracerebral, subclavian, and axillary arteries have been reported. These lesions mimic atherosclerosis, and there is no specific histologic hallmark of radiation-damaged arteries. The only diagnostic criteria of radiation-induced arterial injury is the occurrence of arterial lesions in a previously irradiated area with otherwise healthy arteries. Most of the cases reported occlusive lesions or stenoses, sometimes aneurysmal dilation or arterial rupture.² One publication reported distal embolism arising from a post-radiation lesion.³

Three women, 65, 68, and 76 years old, were referred for the recent acute onset of permanent coldness and pain in the right hand, with ischemic or necrotic fingers. They had undergone radiotherapy after a right mastectomy for breast cancer 12, 14, and 19 years ago, respectively. At the

time of referral, they were considered to be in complete remission. Angiography showed an inhomogeneous short, tight stenosis of the axillary artery, with loss of several digital arteries. The stenoses were considered to be postradiation lesions responsible for distal embolisms in the digital arteries. Percutaneous transluminal angioplasty (PTA) was performed via the humeral retrograde route with a 6F or 7F sheath. Because of additional spasm of the humeral artery, it was possible to leave the side port open during catheterization of the stenosis and during balloon inflation and deflation. The postprocedure angiography showed a good result with no residual stenosis or dissection in all three cases. The clinical follow-up (without ischemic complications) is 18 to 48 months.

Surgical treatment of symptomatic radiation-induced arterial lesions is difficult because of hazards of anastomosis leakage and poor healing of the irradiated skin. Surgeons recommend bypass grafting with anastomosis in healthy (nonirradiated) cutaneous and arterial areas.⁴ PTA of iliac, renal, and brachial radiation-damaged arteries has been reported as an alternative to surgery in the treatment of radioinduced arterial stenosis.⁵ However, PTA is rarely

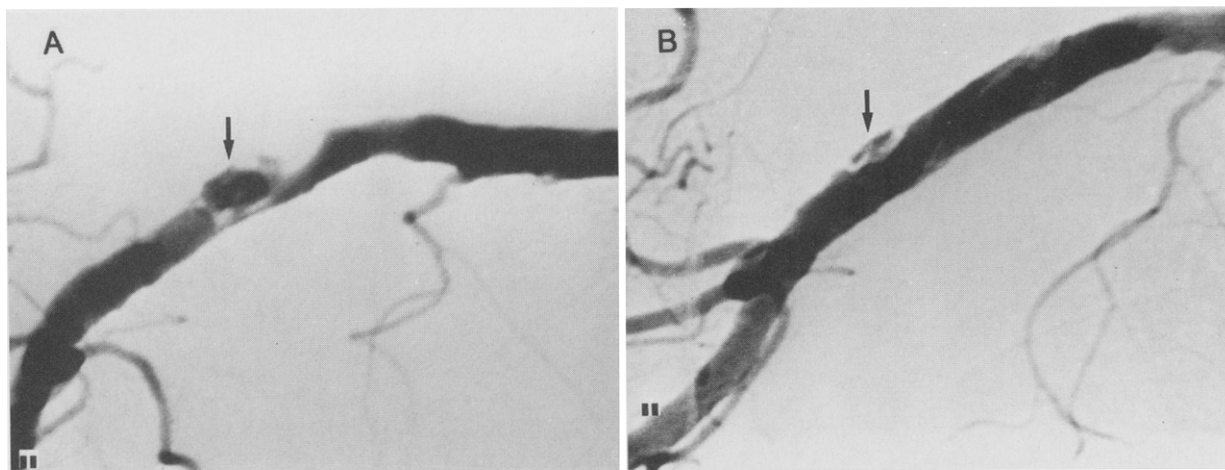


Fig. 1. Angiograms of 76-year-old woman with acute ischemia of second finger and ischemic ulceration. **A**, Selective angiogram of right axillary artery shows hemodynamically significant ulcerated stenosis (*arrow*). **B**, Control angiogram after PTA shows reopening of artery and slight parietal damage (*arrow*).

erformed on arterial lesions causing embolism because of a fear of distal embolism occurring during or after PTA. Our experience shows a good result of PTA on these emboligenic radiation-induced arterial stenosis, with a prolonged relief of ischemic symptoms.

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Regarding "Adverse outcome of nonoperative management of intimal injuries caused by penetrating trauma"

To the Editors:

We are writing in regard to your recently published article entitled "Adverse outcome of nonoperative management of intimal injuries caused by penetrating trauma" by Tufaro et al. (*J VASC SURG* 1994;19:656-9). The data in this interesting study relate to our own studies, which have suggested the safety of nonoperative observation of asymptomatic nonocclusive arterial injuries. However, we disagree with the authors' conclusions.

First of all, this study is retrospective and encompasses only 118 patients. Despite these limitations, it attempts to refute conclusions made in our three cited articles, which

were prospective and involved more than 500 patients. Second, we have in fact clearly defined our criteria for observation of a minimal intimal injury as being those that manifest no hard signs and in which the vessel is intact on arteriography. Our results clearly justify these criteria, and we published a number of arteriographic radiographs to remove any doubt with regard to the injuries amenable to observation. The authors of this article, however, offer no definition of "minimal injuries" and do not provide a single arteriogram to demonstrate what they are calling "minimal intimal injuries." It is evident that their decisions with regard to management were arbitrary, probably differing among individual surgeons. This inability to control relevant variables is, of course, the major problem with a retrospective review. No indication is given about why 16 of their patients immediately underwent operation for presumably the same category of injuries that were observed in the other seven. The absence of arteriograms or at least pathology reports to document that something was present to justify "resection" of intimal flaps in these 16 cases is somewhat suspicious. The six patients with injuries requiring repair on a delayed basis may not have been consistent with the kind that we or others watch, and they qualify as nothing more than selected anecdotal cases.

It is well recognized that this group of patients with trauma have notoriously poor follow-up. We now have unpublished data concerning 139 asymptomatic proximity injuries ranging from 14 to 35 months of follow-up (mean 24.7 months). None of these patients have had development of any evidence of a vascular complication from observation alone of a penetrating proximity injury. In Tufaro's article, the time period between injury and presentation of the six patients requiring delayed repair is not cited.

The mere occurrence of an occasional deterioration of an intimal injury observed without operation should not be surprising, because we have reported this to occur (in a minority of cases).¹⁻³ Tufaro's study actually substantiates our argument for the safety of nonoperative observation, in that the six patients who subsequently had development of a complication had these repaired with no limb loss or adverse effect to these patients whatsoever. There is thus no basis for their conclusion that all these injuries should be found and operated on immediately, because the delay in treatment for those who ultimately required surgery caused absolutely no harm. In fact, not a single instance of limb loss or morbidity has even been reported as a result of observation of clinically occult arterial injuries. On the other hand, observation allows avoidance of a major unnecessary operative procedure on that majority of patients whom we showed will never require surgery in this setting. It must not be forgotten that a small percentage of patients undergoing vascular surgery will have long-term complications, such as recurrent occlusions, stenotic lesions caused by intimal hyperplasia, and even limb loss.

Finally, the authors also do not mention the cost and