Acute Axillo-Subclavian DVT

This case report presents a novel management strategy for addressing acute axillo-subclavian deep vein thrombosis.

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It is recognized that venous thromboembolic disease is an important cause of morbidity as well as mortality in hospitalized patients. Despite recent advances in the diagnosis, treatment, and prevention of venous thromboembolism, the overall incidence may have changed only slightly in the past 30 years. The use of thrombolytic therapy for treating deep vein thrombosis (DVT) is a controversial issue. The theoretical advantages include clot dissolution, which may lead to recanalization, restoration of normal venous hemodynamics, and the prevention of venous valvular damage. The indications for thrombolytic therapy in DVT are limited to a select group of patients. In the following case presentation, we describe the use of thrombolytic therapy for the treatment of an acute upper extremity DVT.

CASE PRESENTATION

A 54-year-old woman presented with a chief complaint of left upper-extremity discoloration and swelling. Four days before presentation, the patient had undergone revision of a permanent pacemaker via the left subclavian vein; the pacemaker was initially placed 10 months earlier. An acute axillo-subclavian DVT was documented by ultrasound, and she was started on full-dose anticoagulation with unfractionated heparin. Because the patient’s arm swelling persisted despite elevation and anticoagulation, she was taken to the angiographic suite for possible endovascular intervention.

Venogram Findings

Venography was performed from the left brachial vein and confirmed thrombotic occlusion of the left subclavian vein (Figure 1).

INTERVENTION

Given the persistent symptoms and swelling despite full-dose anticoagulation, interventional therapy was initiated. The thrombotic occlusion was easily crossed with a...
0.035-inch, hydrophilic, angled Glidewire (Terumo Medical Corporation, distributed by Boston Scientific Corporation, Natick, MA), and a 0.035-inch Cragg-McNamara infusion catheter (Micro Therapeutics, Inc., Irvine, CA) was placed directly into the left axillary and subclavian vein to perform thrombolytic therapy. A bolus of 120,000 units of urokinase (Abbokinase; Abbott Laboratories, Abbott Park, IL) was given, followed by an infusion of urokinase at 80,000 units per hour, along with adjunctive full-dose anticoagulation with unfractionated heparin. Table 1 presents comparative information regarding the decision to use urokinase over other available plasminogen activators.

After 18 hours, the patient was taken back for a second venogram. There was 90% resolution of thrombus burden, with a persistent intraluminal filling defect around a fibrotic venous stricture at the site of the permanent pacemaker lead. Thrombectomy using the AngioJet device was performed (Figure 2), and adjunctive PTA was done with a 12-mm diameter X 40-mm length P3 balloon (Cordis Corporation, a Johnson & Johnson company, Miami, FL) (Figure 3).

**OUTCOME**

The final venogram demonstrated an adequate lumen with brisk inflow into the superior vena cava (Figure 4). The patient was discharged home the next day with
complete resolution of her left upper-extremity swelling, a stable hemoglobin level, and full-dose anticoagulation utilizing Lovenox (Aventis Pharmaceuticals, Bridgewater, NJ) SQ injection 80 mg SQ b.i.d. as a bridge to coumadin (Bristol-Meyers Squibb Company, New York, NY) therapy. A follow-up venous ultrasound was scheduled to be performed in 3 months.

**CONCLUSION**

Thrombolytic therapy for DVT should be considered in patients with phlegmasia cerulea dolens, superior vena cava syndrome, extensive iliofemoral involvement, and younger individuals with axillo-subclavian thrombosis. Catheter-directed thrombolytic infusions delivered selectively into the involved vein are preferred to provide optimal drug distribution. Adjunctive mechanical thrombectomy plays an important role in managing these challenging patients. The use of urokinase is well defined in peripheral vascular disease patients, including high-risk groups, and has the theoretical advantage of less Fragment X generation that may lead to diminished bleeding complications.

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