Safety of Plug-Mediated Vascular Closure for Prosthetic Arterial Graft Puncture

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Abstract

Vascular closure devices are commonly utilized during femoral arterial puncture to obtain hemostasis and reduce the time to post-procedural ambulation compared to manual compression. The Angioseal VIP (Terumo Interventional Systems, Sommerset NJ) device has been shown to be safe and effective for retrograde access of native common femoral arteries but has not been investigated for use in the puncture of prosthetic grafts. Our group has been using the AngioSeal for prosthetic graft access for several years and completed this study to document the success and variable failure of the device. We retrospectively reviewed the charts of 53 patients from Froedtert Hospital in whom the AngioSeal device (either 6F or 8F) was used to close prosthetic peripheral arterial graft access from patients including interventional radiology and vascular surgery. The grafts included 31 femoral-femoral crossover bypasses, 32 femoral-distal bypass grafts, and 11 inflow bypasses (aortofemoral or iliofemoral) with either retrograde access, anterograde access, or both. Demographic variables included age, sex, BMI, and medication use. Procedural variables included immediate technical success and 30-day complications including infection, bleeding, hematoma formation, and thrombosis. Immediate technical success was 97.3%. Complications included infection (n=0), bleeding (n=1), and hematoma (n=1). No significant statistical differences were observed between any collected variables. Comparing our data with prior common femoral artery manual compression versus Angioseal closure studies, the data shows statistical significance of success between native femoral arterial closure and prosthetic bypass closure in patients of a similar demographic pool. We have shown a 97.3% success rate for plug-mediated closure of prosthetic arterial graft access when the Angioseal VIP was used on 53 patients. This technique is safe and effective for this clinical scenario and may result in lower complication rates compared to manual compression. Following this study, our team is interested in investigating if the success rate differs when large bores inserted into prosthetic femoral bypass grafts increase above 6F and 8F gauges, requiring larger Angioseal closure devices.

Image



Recent Publications - None

Photograph



Biography

Alynah Adams is currently a second-year medical student interested in a career focused on surgical innovation, improving access to care, and mitigating health disparities.

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Notes/Comments: