

11. Endovascular Infringuinal Interventions With Embolic Protection Device - Who Requires It?

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OBJECTIVE: Distal embolization can occur with significant consequences with endovascular interventions of infra inguinal arteries. We report acute outcomes in a select group of patients undergoing endovascular infringuinal interventions. We compare the techniques involved in intervention and lesion characteristics with the volumetric and gross analysis of filter particulate.

MATERIALS and METHODS: Patients undergoing endovascular therapy for infra inguinal disease with embolic protection was identified from our vascular database. Embolic protection was utilized in patients with complex disease and compromised runoff, where embolization risk was thought to be very high. Digital imaging was performed of all filters, with macroscopic and volumetric analysis of the filter particulate. Retrospective review of medical records and angiograms were reviewed to tabulate TASC classification, run off, method of intervention and acute outcomes.

RESULTS: Over the past 24 months 28 patients underwent endovascular therapy for infra inguinal occlusive disease with embolic protection. Patient demographics and indications are listed in Table 1. The Lesion characteristics and mean filter particulate in mm³ are as highlighted in Table 2. Three fourths of our patients had a single vessel run off. Techniques of intervention included Laser atherectomy (n=23) or silver hawk atherectomy (n=5) with or without additional angioplasty and stenting. Over all mean volume of material recovered in the filters was 16.86 mm³. Comparing the technique of intervention we found that patients undergoing laser atherectomy had a mean volume of 18.91 mm³ in filters while in patients having Silver Hawk atherectomy the mean filter particulate volume was 7mm³ (Table 3). Longer lesion lengths were associated with higher embolic particulate volume (table 4)

CONCLUSION: Significant distal embolization can occur in wide range of patients undergoing endovascular infra inguinal interventions. Based on our results we believe that distal embolic protection has a role in a select group of patients with single vessel runoff, with long segment lesions, with those undergoing atherectomy. Further randomized studies are required to evaluate the benefits of embolic protection based on the lesion morphology and techniques of revascularization.

Table 1: Patient Demographics and Indications for Treatment

Number of pts (n)	28
M:F ratio	3:1
Average Age	61.35
Indication for intervention:	
Rest pain	32%
Ischemic ulcers	25%
Claudication	43%

Table 2: Lesion and Filter Characteristics

Mean Lesion Length (cm)	23.46
TASC Classification	
TASC-C	10.70%
TASC-D	89.30%
Mean Filter Particulate (mm ³)	16.86

Table 3: Comparison of Technique of Intervention with Volume of Embolic Particulate

	Laser Atherectomy	Silverhawk Atherectomy
Number	23	5
Length (cm)	23.3	24.2
Particulate volume (mm ³)	18.91	7.0

Table 4: Comparison of Lesion Length Treated with Volume of Embolic Particulate

Lesion length (cm)	Average length (cm)	n	Filter particulate (mm ³)
<11	8.67	9	11.73
11-20	15.75	4	6.5
21-30	26.66	6	13.66
31-40	38.87	8	29.37
>40	45	1	23.3

