Improved Treatment of Klippel-Trenaunay Syndrome With Steam Vein Sclerosis and Foam Sclerotherapy
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Background:
Klippel-Trenaunay Syndrome is a congenital syndrome characterized by capillary malformations, giant varicosities and bony or soft tissue hypertrophy. KTS is a low-flow anomaly of capillary-lymphatic-venous malformation (CLVM). The treatment of the giant varicosities is notoriously challenging. Complete surgical excision is seldom possible resulting in persistent symptoms in over 90%. The tortuous veins are not amenable to radiofrequency or laser ablation.

Objectives:
To present our treatment experience with KTS patients comparing the results of steam vein sclerosis (SVS) and foam to US-guided foam sclerotherapy (USGS) alone.

Methods:
KTS patients were treated only if the deep system was intact. Treatments included SVS followed by foam sclerotherapy or USGS alone. Patients were followed for symptoms, signs and their satisfaction. Follow up visits were scheduled once a month for the first three months and once every three months thereafter. All visits included US mapping and continued treatment when necessary.

Results:
13 patients were treated during the last decade, 9 by USGS alone and 4 by SVS. There were 8 females and 5 males with a mean age of 28 years (range 16-56). Their CEAP classification was C4 in 9 patients, C5 in 3 and C6 in one. All patients reported on initial improvement in their signs and symptoms. Eleven out of thirteen (84.5%) were very satisfied with the cosmetic result. The average number of treatment sessions by SVS and foam was 5.5 (range 3-7) compared to 13.5 (range 8-21) by USGS alone.

Conclusions:
SVS and USGS are valid and effective minimal invasive ambulatory procedures for the treatment of KTS patients. Procedures are essentially pain-free with excellent results, albeit the treatment period is long.

SVS first, followed by foam considerably and significantly shortens the treatment period.