

Background

Despite inclusion in guidelines on the management of intestinal failure (IF), little evidence exists regarding the use of endovascular interventions (EI) to treat catheter-related venous thrombosis (CRVT) in patients on home parenteral nutrition (HPN).

This is the first time that the long term outcomes of EI have been described in this patient group.

Aims

To investigate outcomes of endovascular interventions for the treatment of CRVT in patients with IF on HPN.

Methodology

A single centre retrospective study. All patients with IF on HPN between January 2007 and February 2019 were included. Clinical and radiology databases were used to identify patients with CRVT.

Data collected included:

- demographics (age, gender)
- clinical information (IF aetiology, intestinal anatomy, central venous catheter history, duration of HPN) and possible risk factors predisposing to CRVT (medications, thrombophilia, malignancy, previous venous thromboembolism (VTE), family history VTE, pregnancy, smoking)
- details of EI (type, complications, post-procedure anticoagulation)

Time to loss of venous patency following EI was calculated, as shown by venous re-occlusion on imaging, need for repeat EI or intestinal transplant for loss of venous access. Cases were censored at cessation of HPN, death unrelated to CRVT or end of study period.

Statistical analysis was performed with Kaplan-Meier and Cox proportional hazards model.

Results

62 patients (46 females, 16 males) underwent 93 episodes of EI for CRVT.

Mean age of patients undergoing EI was 54.1 ± 14.1 (range 20.0 to 79.5) years.

Results

Following EI, the mean duration of venous patency was 57.0 ± 6.4 (95% confidence interval (CI) 44.5 to 69.4) months.

On univariate analysis, factors associated with shorter time to re-occlusion following EI included age, EI type, thrombophilia, malignancy and use of taurolidine lock (see Table 1).

	Hazard ratio of re-occlusion (95% CI)	p value
Age	0.98 (0.96-1.00)	0.03
EI type		0.03
Thrombolysis alone	3.98 (1.39-11.43)	
Venoplasty \pm thrombolysis	2.24 (1.01-5.00)	
Stent \pm thrombolysis	1	
Thrombophilia	3.03 (1.32-7.00)	<0.01
Malignancy	4.00 (1.51-10.52)	<0.01
Taurolidine lock use	2.09 (1.12-3.93)	0.02

Table 1. Univariate analysis. Factors affecting duration of venous patency following endovascular intervention.

On multivariate analysis, receiving thrombolysis alone was associated with a shorter time to re-occlusion following EI compared to other interventions ($p=0.02$, hazard ratio 4.8, 95% CI 1.26-18.37).

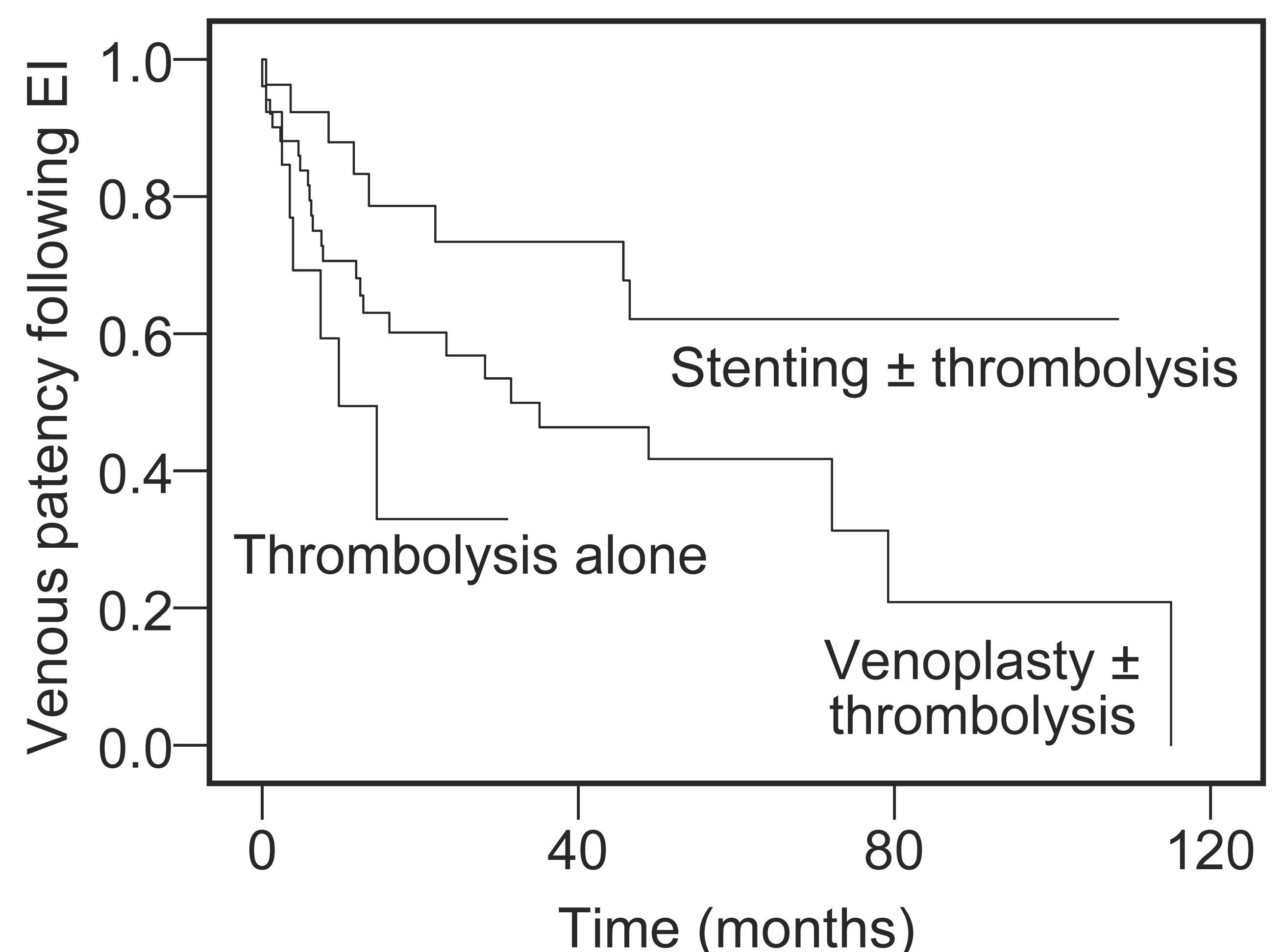


Figure 1. Kaplan-Meier plot showing venous patency following endovascular intervention.

Overall complication rate was 8.6%, with no mortality. Complications were bleeding ($n=4$, 4.3%), venous dissection requiring covered additional stent ($n=2$, 2.2%) and ruptured venoplasty balloon requiring retrieval ($n=2$, 2.2%).

There were no long term sequelae of any complications identified during the follow-up period.