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Evaluation of the use of the FAS endoluminal brush and 20 % ethanol flushes to unblock central venous catheters used for long-term parenteral nutrition

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Catheter occlusion is the second most common problem associated with vascular access devices⁽¹⁾. In patients receiving parenteral nutrition (PN), lipid deposits can form a waxy substance along the lumen of the line which gradually occludes the central venous catheter (CVC)⁽²⁾. The use of 70% ethanol locks has been reported to unblock lipid occlusions⁽³⁾; while a 20% ethanol flush after lipid infusions has been reported to help prevent the build-up of lipid deposits that occlude the CVC^(4,5).

Endoluminal brushing of CVC’s is more widely known for improving flow rates in catheters used for haemodialysis^(5,6). The FAS endoluminal brush has been used successfully to diagnose CVC related sepsis, while the line remains *in situ*⁽⁷⁻⁹⁾. In this study, the FAS endoluminal brush is used to salvage occluded CVC’s used for long-term PN.

A retrospective audit was done on all the patients receiving long-term PN over the preceding 4 years.

Seventy six FAS endoluminal brushes were performed on 40 patient episodes of line occlusions over a 4-year period.

	No. of patient episodes with line occlusion	No. of patients	No. of endoluminal brushes	Successfully cleared occlusions	Unsuccessful brushes requiring new CVC	Partially cleared occlusions
2005–6	11	5	19	9	1	1
2006–7	11	8	16	9	0	2
2007–8	11	7	26	8	2	1
2008–9	7	6	15	3	3	1
Total	40	16*	76	29	6	5

Eighty five percent of all patient episodes had the CVC salvaged. Fourteen percent of these required a linogram post brushing to fully restore the patency of the CVCs. All the failed patient episodes had CVC occlusion caused by fibrin sheath. The mean no. of patient episodes was 2.5. One patient had a total of 7 episodes of CVC occlusions.

Prior to the introduction of the FAS endoluminal brush, the first line treatment for blocked CVCs used for PN was either urokinase lock or an ethanol lock. This has since changed to FAS endoluminal brushing followed by 20% ethanol flush (5 ml). Weekly flushing of the long-term CVCs with 20% ethanol (5 ml) has since been introduced to maintain patency of the catheter. This has shown to be beneficial more so in the patients who had repeated CVC occlusions due to lipid deposits.

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