Enquiries were made of the IBTS and 6 U of single-donor FFP were then made available to the patient.

By the fifth day following her admission, airway swelling had begun to subside and the patient was transferred to a tertiary hospital near her home. She was discharged well 2 days later.

Octaplas® has been approved by the United States Food and Drug Administration since 1998 as a virally inactivated alternative to FFP for the replacement of coagulation factors and the reversal of the effect of warfarin. This product is prepared from the pooled plasma of a large number of donors, which is heated to 31°C for 4 h in the presence of the detergents tri(*n*-butyl)phosphate and Triton-X-100. The final product is filtered through a 0.2 μm filter to remove particulate foreign matter [5]. While this method is highly effective in virally inactivating the plasma, thus rendering it safer for transfusion, it also presents some biochemical shortcomings. It has been shown that heat and/or detergents induce irreversible conformational changes in the structure of serine protease inhibitor proteins in Octaplas®, thus inactivating them [3]. This family of proteins represents the largest class of proteinase inhibitors in plasma representing all of the major proteolytic cascades, including antitrypsin, antiplasmin, vonWillebrand factor, C1-inhibitor and heparin cofactor II.

Therefore, Octaplas® is not suitable for use in situations of low plasma antiplasmin activity such as that seen during the anhepatic phase of liver transplantation, where the acquired fibrinolytic state and subsequent intraoperative bleeding may necessitate massive transfusion [3]. In Ireland, liver transplantation is the single exception to the 'compulsory' use of Octaplas® and a separate stock of FFP is maintained by the IBTS for supply to the National Liver Transplantation Unit. All other hospitals and departments, however, receive Octaplas®.

In light of our experience, it seems likely that inhibitors of the complement cascade, themselves serine proteases, may be inactivated in the manufacture of Octaplas®, possibly rendering it unsuitable for use in the management of acute attacks of angioedema. While licensed indications for Octaplas® are identical to those for FFP [6], we feel that further direct clinical comparison of the two products is now warranted in order to inform guidelines governing their use, and we would therefore suggest that Octaplas® is not an equivalent or appropriate substitute for FFP in all circumstances.

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Foreign body occlusion of syringe driver mechanism

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EDITOR:
We would like to report a 'near-miss' incident that occurred in our hospital recently.

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A 14-yr-old male was receiving an intravenous (i.v.) remifentanil infusion for intraoperative analgesia during a Laparoscopic Cholecystectomy. The procedure had been uneventful with the remifentanil infusing at 21 mL h^{-1} (0.2 μg kg^{-1} min^{-1}) from a Monoject* 50-mL syringe (Tyco Healthcare, Gosport, UK) mounted on an IVAC®P3000 syringe driver (Alaris™ Medical Systems, Basingstoke,

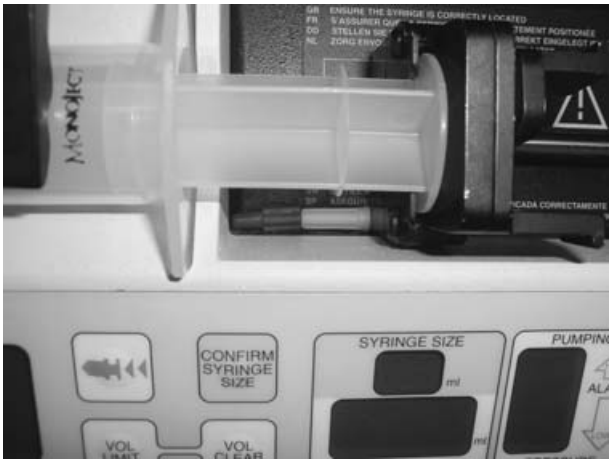

Figure 1.
Two caps of the extension set obstructing the syringe driver's mechanism.

UK) via a dedicated 22-G cannula on the dorsum of the hand. After 90 min, the syringe driver alarm began to sound and displayed an 'occlusion' error message. The syringe, line and i.v. site were checked visually and no occlusion was noted. It was only on closer inspection that two caps from a Lectro-Cath 150 cm i.v. extension set (Vygon UK Ltd, Cirencester, UK, ref. 1155.15) were seen to be obstructing the syringe driver's mechanism (Fig. 1). The offending caps were removed and the case was completed with no further incident.

The potential of foreign bodies to obstruct anaesthetic breathing equipment has been widely publicized since a fatal incident in 2001 [1]. However, this is not a new phenomenon and there are similar reports from as early as 1962 [2]. We performed a PubMed literature search and noted that fluid administration set blockage and syringe driver malfunction have been reported previously [3,4]. To our knowledge, this is the first reported case of obstruction of a syringe driver's mechanism by a foreign body.

To reduce the chances of a similar incident occurring, we recommend the following actions:

- A thorough check of all equipment planned to be used prior to starting the case. Currently, the Association of Anaesthetist's guidelines for checking anaesthetic equipment concentrate on the anaesthetic machine, monitoring and associated breathing system items [5]. It makes no mention of infusion devices.
- Adherence to the Medical Devices Agency advice that 'Immediately after removal, the protective caps of intravenous administration sets and other items must be disposed of in an appropriate container' [1].
- A reduction in the amount of 'non-essential' pieces of plastic, including caps and packaging that seem to accompany all medical equipment. The Lectro-Cath 150 cm i.v. extension set (Vygon UK Ltd) comes in two plastic bags and is accompanied by two caps and four plastic clips. This would not only help our patients in the short term, but would also have longer-term beneficial effects on the environment.
- Improved design of infusion devices to incorporate a cover for the moving parts.

Luckily, there was no untoward clinical sequela resulting from this incident. However, syringe driver failure in another clinical setting, for example during a total i.v. technique, or when inotropes were required, may have resulted in a more serious incident. We have reported this incident at our local Morbidity and Mortality Meeting, and to the Medicines and Healthcare products Regulation Agency (MHRA).

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