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Respiratory obstruction associated with the use of the Brighton epistaxis balloon

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Abstract
A case is reported where posterior displacement of a Brighton balloon catheter (Eschmann) is thought to have led to inhalation of clot from the nasal cavity with subsequent respiratory obstruction. Precautions in using this type of epistaxis balloon are discussed.

Key words: Epistaxis, therapy; Respiratory insufficiency.

Introduction

The Brighton epistaxis balloon (Eschmann) is designed to control posterior epistaxis by inflating balloons in the nasal vestibule and posterior choana on the side of insertion (Wadsworth, 1971). A recent radiological study has broadly confirmed this mechanism of action although the posterior balloon does tend to fill the entire nasopharynx (McGarry and Aitken, 1991). Bleeding may continue within the nasal cavity but stops when tamponade occurs due to the presence of blood and clot held within the nose by the two balloons. There is a potential for the whole of the nasal cavity on the side of insertion to fill with clot. Such a clot is large enough to cause respiratory obstruction if it is subsequently inhaled.

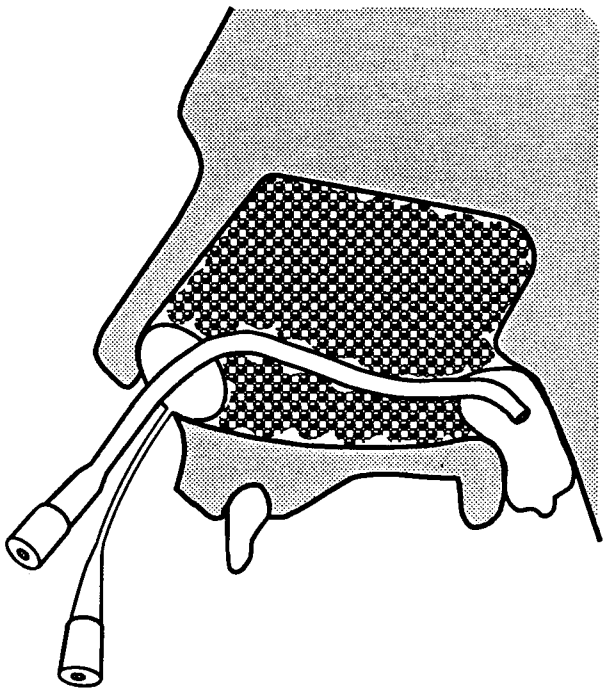

Fig. 1
Brighton balloon in place tamponading the nasal cavity.

Case report

A 78-year-old female was admitted with a two day history of intermittent epistaxis. Her past medical history included dysphagia to solids due to a benign lower oesophageal stricture. She was not bleeding on admission but a small amount of dried blood was present in both nasal vestibules. No bleeding point could be seen on anterior rhinoscopy. Her blood pressure was 150/90 mmHg, haemoglobin 12.5 gm/dl and a clotting screen was normal.

Twelve hours after admission she had recurrent posterior epistaxis on the right. A Brighton balloon catheter (Eschmann) was

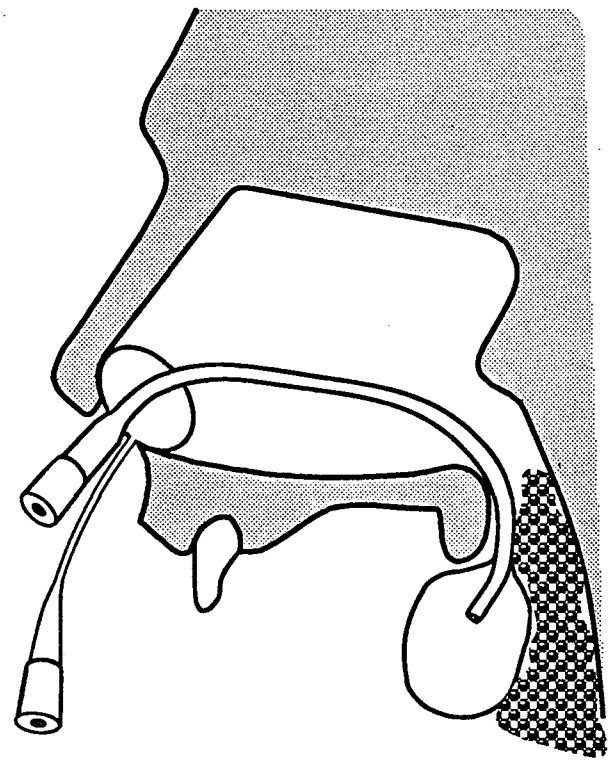

Fig. 2
If the posterior balloon is displaced clot may prolapse backwards from the nose.

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inserted on this side following the manufacturer's instructions and the bleeding was initially controlled. One hour later further bleeding was noted from the left nostril and a second balloon was inserted. Some intermittent minor bleeding continued postnasally for two hours before haemostasis was achieved. She received two doses of 2.5 mg diazepam four hours apart but no other sedative drugs. She was awake and fully orientated.

One hour later the patient started to choke. The nursing staff noted that the posterior balloon on the right had slipped backwards and was visible in the mouth although the anterior balloon was still inflated. The anterior and posterior balloons were immediately deflated and the device was removed. The patient remained severely distressed and the cardiac arrest team were called. The epistaxis balloon on the left was removed and the patient was intubated. Ventilation was not possible due to tracheal obstruction below the tip of the endotracheal tube which could not be cleared with suction. The patient died shortly afterwards.

At post-mortem a clot was present in the larynx extending down the trachea into the main bronchi causing obstruction of the airway.

Discussion

When the Brighton epistaxis balloon is inserted the posterior balloon is prevented from slipping backwards into the oropharynx by pressure on the shaft by the anterior balloon (Fig. 1). In this case the posterior balloon slipped backwards despite the anterior balloon remaining in place. It seems likely that this allowed the clot within the nasal cavity to prolapse backwards into the oropharynx (Fig. 2) where it was subsequently inhaled causing respiratory obstruction and death. It is possible that the dysphagia experienced by the patient due to her lower oesophageal stricture may have made her less able to swallow the clot with subsequent inhalation.

Posterior epistaxis may be managed by endoscopic examination of the nose and cautery (McGarry, 1991; Premachandra, 1991). However, the equipment and expertise for this to be performed may not be immediately available and many patients will be managed by traditional methods.

Nasal packing, nasal tampons and other epistaxis balloons partially fill the nasal cavity preventing the build up of a large clot. These alternative methods of controlling posterior epistaxis are probably to be preferred to the Brighton balloon in those patients who may not have optimal protection of their airway.

Acknowledgements

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