

## Letters to the Editors

### Total necrosis of tongue due to severe haemorrhage

Dear Sirs

In cases of advanced cancer involving the upper airway, severe spontaneous bleeding from the tumour can be lethal due to asphyxia and blood loss.<sup>1</sup> Because of the development of the vascular intervention technique, severe bleeding can be effectively treated by embolization.<sup>2</sup> Nevertheless, in the case of a huge tumour supplied by multiple vessels, embolization of a single vessel is not enough to obtain complete haemostasis. Multiple-vessel embolization can effectively control severe bleeding, but it may increase the possibility of complications.<sup>3</sup>

A 60-year-old man was admitted to our hospital because of dyspnoea and dysphagia. On physical examination, a tumour with an irregular surface arising from the tongue base was observed through his mouth and the tumour bled easily. The mobility of the tongue was limited. Laryngeal fibrescopy showed that the mass extended to the supraglottic larynx, and the tumour narrowed the airway. After the tracheostomy was performed, the tumour specimen proved to be a moderately differentiated squamous cell carcinoma.

Because of the many risks associated with radical surgery, palliative concomitant chemo-radiation therapy was planned but this was postponed by severe bleeding from the tumour. Tamponade with gauze soaked with epinephrine solution had no effect. Since blood-loss was estimated at more than 500 ml at the time, vascular embolization was planned by radiologists. Digital subtraction angiography showed the large tumour stain and a pooling of extra-vascularized contrast material (Figure 1). At

first, the left lingual artery was embolized selectively with gelfoam. Since the bleeding still continued, the right lingual artery was also embolized and complete haemostasis was obtained.

Because the anterior two-thirds of the tongue became necrotic the day after the embolization, total glossectomy with bilateral modified radical neck dissection was performed after informed consent had been obtained from the patient and the family. The operative specimen showed a large tumour together with the necrotic anterior two-thirds of the tongue. Since the patient's condition did not allow for immediate reconstruction, the fistula was successfully closed with a free rectus abdominis flap three months later. The patient remained alive without evidence of tumour recurrence 30 months after the operation.

Disruption of the lingual artery by a malignant tumour can result in profuse haemorrhage.<sup>2</sup> Lingual artery anastomoses across the midline septum are limited to a few small vessels only at the base and tip of the tongue,<sup>1,2</sup> so that haemorrhage can be controlled usually by occlusion of the ipsilateral lingual artery.

In our case, since the tumour was supplied with blood by the bilateral lingual arteries, bleeding could not be controlled with unilateral lingual embolization. The tongue base contains branches not only from the lingual artery but also from the facial and ascending pharyngeal arteries.<sup>2</sup> Because the terminal branch of the lingual artery (the deep lingual artery) is an end artery, necrosis of the anterior two-thirds of the tongue is possible even with unilateral lingual artery embolization.

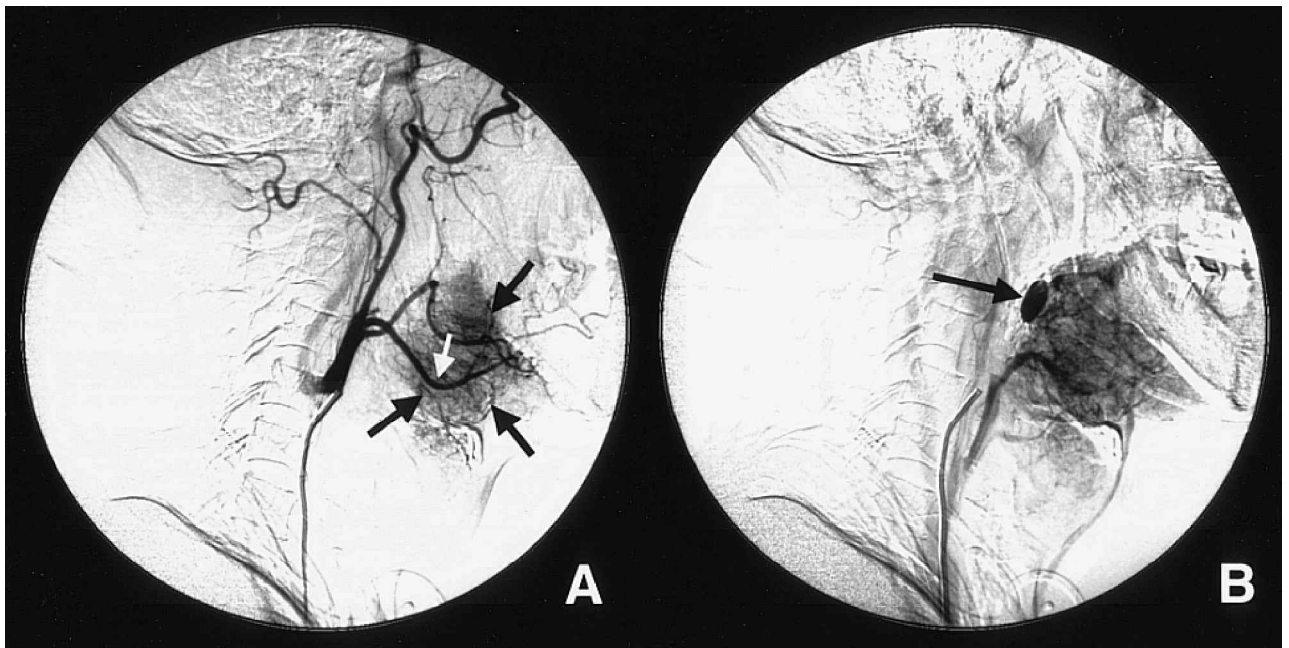


FIG. 1

Digital subtraction angiography of left external carotid artery. (a) A large tumour stain (black arrows) was observed at the tongue base and supraglottic larynx. Both the left lingual (white arrow) and facial arteries can be seen running through the stain. (b) Extra-vascularized contrast material (black arrow) was observed at the tongue base.

Tongue necrosis might have been avoided in our case by super-selective embolization of the lingual artery branch. However, super-selective embolization was not possible in this case because of arteriosclerosis.

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## Increased post-operative haemorrhage seen in adult coblation tonsillectomy *JLO* 2003;**117**:704–6

Dear Sirs

It was with dismay and disappointment that we read the above paper. Both the conduct and conclusions of this paper are unfortunate to say the least.

Over the last three years coblation tonsillectomy has been developed and used in East Lancashire. It has been taught to surgeons from all over the UK, including Bolton, and the world. Training videos are also available from the manufacturers.

We have published two papers on the reduced post-operative pain levels found with this procedure. In these papers we pointed out that at that stage no conclusions could be drawn on secondary haemorrhage, and the same should be said about a sample of 36.

Our post-operative haemorrhage rates were presented at BACO this July and the American Academy meeting in Orlando in September 2003 based on a group of 1030 coblation tonsillectomies, a somewhat larger sample than the one quoted in this paper. Our results show a significantly reduced rate of secondary haemorrhage in both paediatric and adult groups.

Our peer-reviewed results will appear shortly as a paper in *The Laryngoscope* and we urge all surgeons genuinely interested in the future of tonsillectomy to read and digest it . . .

In the tiny study by Noon and Hargreaves, the surgeon has made his own departures from the recommended method for coblation tonsillectomy. He has used the CoVac wand, a single lumen device which is no longer available, rather than the Evac 70 wand which provides simultaneous suction and irrigation, transforming the nature of the operation. The placing of a ligature at the lower pole has never been recommended and its use is a mystifying departure and quite unnecessary.

All surgeons in our department use the operating microscope except when requested by those unwilling to try this invaluable accessory to demonstrate the use of the equipment with the naked eye. The microscope makes the surgery faster and haemostasis more meticulous. Clearly, for some surgeons this is a fact that has to be seen to be believed.

Noon and Hargreaves question the coagulative abilities of the coblation equipment but used correctly this is more than adequate, as demonstrated by our own results.

The only reasonable conclusion to be drawn from this paper is not that coblation tonsillectomy has an increased risk of secondary haemorrhage in adults but that the surgeon involved is still on the learning curve and it is perhaps better that this method is not used by those who feel unable to adopt the best practices in its use. The figures in this paper do not exclude the presence of a learning curve as was stated. It is simply that we all have different learning curves.

To this end the BAO-HNS and NICE has commissioned training guidance which is in preparation and will be available soon. Hopefully this will help avoid an elegant and promising technique being discredited.

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Dear Sirs

Noon and Hargreave's paper reporting a secondary haemorrhage rate of over 22 per cent in 36 patients represents an unacceptable level of significant morbidity, regardless of the technique employed.

The coblation technique is recently introduced, and my own experience of a similar number of adults and children undergoing tonsillectomy by this technique, is that it has produced a significant reduction in duration and severity of post-operative pain, and a secondary haemorrhage rate lower than that of other methods.

As with all new technology, there is a learning curve and appreciation of the tissue response to this type of plasma field dissection: for example, inadvertently using ablation after the tonsil has been removed, will result in a deep hole appearing in the muscle bed, with possibly difficult to control bleeding from deeply placed vessels. (I recommend that the ablation setting is reduced to the minimum after the tonsil has been removed and before any final coagulation to the tonsil bed is performed).

The company advises surgeons to perform the first dozen or so coblation tonsillectomies on paediatric patients as the operation is technically less demanding. The authors do not make it clear if this advice was followed, before embarking on more challenging adult surgery. Comparing the skill of an operator using a well-practised technique and a new technology must surely introduce a bias in favour of the established technique.

The current guidance from the National Institute for Clinical Excellence (NICE)<sup>1</sup> concludes that the coblation technique offers advantages in terms of reduced post-operative pain, and has similar risks of haemorrhage to other tonsillectomy techniques.

While the authors dismiss the learning curve effect as the likely cause for their high secondary haemorrhage rate, my interpretation and personal experience, is that it will prove to be the factor accounting for the observed and unexpectedly high complication rate.

To address this potential learning curve problem, NICE has requested the BAO-HNS to produce training standards for this procedure.

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