Letter

Complications of percutaneous dilating tracheostomy

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Related to *Research* by Fikkers *et al.*, see page 395

We read with interest the retrospective analysis of patients who underwent percutaneous tracheostomy by Fikkers and colleagues [1]. We were surprised by the high complication rates with both the guidewire dilating forceps (GWDF) technique and the Ciaglia Blue Rhino (CBR) technique in their series (25.1% and 41.5%, respectively).

We prospectively collected data on perioperative complications of CBR from February 2000 to February 2003; in this period we performed 128 percutaneous dilating tracheostomies with the CBR technique. The complication rate was extremely low (Table 1). Although we must mention that we considered bleeding to have taken place only when blood loss was 'guesstimated' to be more than 20 ml, life-threatening blood loss or blood loss requiring surgical exploration was never encountered. Furthermore, we identified no complications related to needle insertion.

Our complication rate is in accordance with rates found in other series [2,3].

Table 1

Perioperative complications of Ciaglia Blue Rhino

Complication	*n*	%
No complications	121	94.5
Minor complications		
Bleeding	5	3.9
Subcutaneous emphysema	0	0
Air leakage cuff	0	0
Puncture endotracheal tube	0	0
Puncture posterior tracheal wall	0	0
Accidental detubation	0	0
Hypotension	1	0.8
Major complications		
Bleeding	0	0
Fausse route	0	0
Oesophageal perforation	0	0
Pneumothorax	0	0
Conversion to surgical procedure[a]	1	0.8

[a]In one patient the percutaneous tracheostomy was converted to a surgical procedure, because of an overlying thyroid gland.

Competing interests

The authors declare that they have no competing interests.

Authors' response

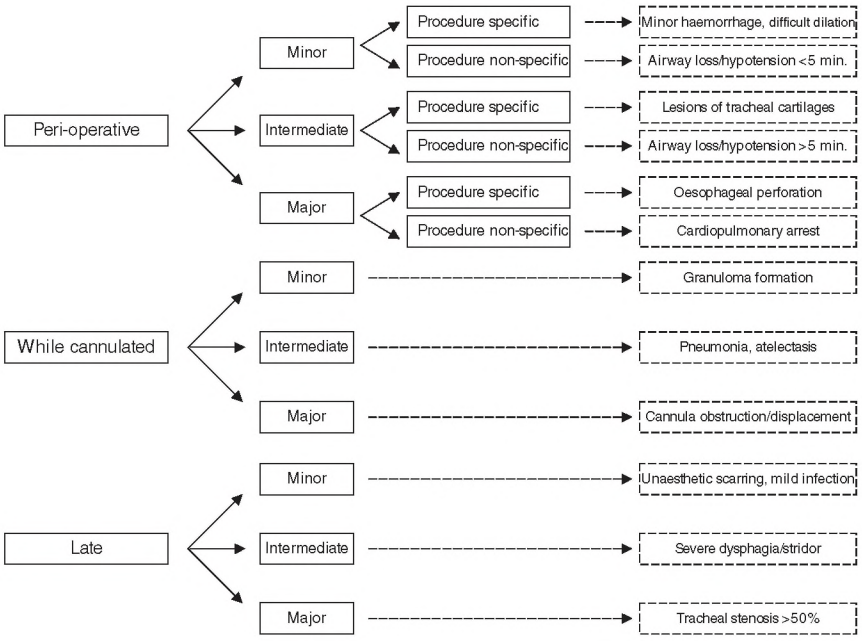
Bernard G Fikkers and Johannes G van der Hoeven

We thank Dr Dongelmans and coworkers for their interest in our study. They state that they are surprised by our high complication rate and that their complication rate is in accordance with those found in other series, referring to just two studies.

The first study, that by Polderman and coworkers [2], which employed the GWDF technique, found a major complication rate of 4.0%. The other study, that by Berrouschot and coworkers [3], in which the multiple dilator technique was employed, reported a 7.9% major perioperative complication

CBR = Ciaglia Blue Rhino; GWDF = guidewire dilating forceps.

Figure 1



Complications of percutaneous tracheostomy.

rate, including one death (caused by tracheal laceration). Minor complications were not reported. It is difficult to believe that the patients in those two series suffered only from major complications and not any minor ones! We prospectively collected all our data and found major complication rates of 7.6% with GWDF and 5.3% with CBR. Because the difference between major and minor complications is important, we have decided for future research to categorize complications related to percutaneous tracheostomy as minor, intermediate and major (Fig. 1). Using these new definitions, the major complication rates in our series are 2.3% and 2.9%, respectively, because most major complications would be redefined as intermediate. Moreover, because we meticulously registered our perioperative complications, we are able to inform readers about all other complications they may encounter, although the majority is rarely clinically relevant.

We congratulate our colleagues from Amsterdam for their excellent results. We analyzed the available literature published up until 2002 and found that major complications varied from 0% to 14% (average 3.0%) in 28 studies (4066 patients) that used the multiple dilator technique; from 0% to 4.9% (average 3.0%) in six studies (461 patients) that used the GWDF technique; and from 1.3% to 5.0% (average 2.8%) in three studies (286 patients) using the CBR technique. We therefore feel that our results are completely in accordance with the existing literature. (For full details of our analysis and reference details, see Additional file 1.)

Competing interests

The authors declare that they have no competing interests.

Additional file

The following Additional file is available online:

Additional file 1
Three tables summarizing the complications of progressive dilational tracheostomy, guidewire dilating forceps technique and the peri-operative complications of the conic dilational technique in observational studies (with references).
See http://ccforum.com/content/supplementary/cc2941-S1.pdf

References

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