

Permanent Tracheostomy for Laryngeal Collapse

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In the Literature

Gobbetti M, Romussi S, Buracco P, Bronzo V, Gatti S, Cantatore M. Long-term outcome of permanent tracheostomy in 15 dogs with severe laryngeal collapse secondary to brachycephalic airway obstructive syndrome. *Vet Surg.* 2018;47(5):648-653.

FROM THE PAGE ...

Brachycephalic airway obstructive syndrome encompasses many primary defects, including stenotic nares and nasopharyngeal turbinates, hypoplastic trachea, and elongated soft palate, which may be a primary or secondary condition.¹ These anatomic abnormalities result in increased resistance to airflow and an increased intraluminal pressure gradient during respiration.¹ Increased airway resistance can lead to secondary manifestation of brachycephalic airway obstructive syndrome, including laryngeal collapse.

Laryngeal collapse occurs when the larynx cartilages lose structural rigidity. It is staged in severity from I to III. Stage I laryngeal collapse consists of eversion of the laryngeal ventricle (sacculae). In stage II, the cuneiform process of the arytenoid cartilage is medially displaced. In stage III, the corniculate processes are collapsed, resulting in loss of the dorsal arch of the rima glottidis and subsequent airway obstruction.² Treatment of laryngeal collapse is based on severity. Stage III collapse is corrected through a salvage procedure and is treated with cricoarytenoid and thyroarytenoid caudolateralization or permanent tracheostomy.^{1,3}

The authors of this study reported outcomes of 15 dogs with stage III laryngeal collapse treated with permanent tracheostomy. Major complications were reported in 12 (80%) of the dogs, 8 (53%) of which died or were euthanized. Of the remaining 7 dogs, 6 died of unrelated causes, and one dog was alive at the end of the study. Although these numbers may seem poor, it is important to recognize that 47% of the dogs either died of an unrelated cause or remained alive after undergoing permanent tracheostomy as a salvage procedure due to severe respiratory signs.

The reported median survival time was 100 days. Early mortality was common; 6 dogs died within 20 days postoperation. Median survival time of dogs dying from causes related to surgery was 15 days, whereas median survival time of dogs that died of unrelated causes was 1982 days. Four (27%) dogs underwent revision surgery; these dogs survived long-term or died of unrelated causes.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Permanent tracheostomy as a salvage procedure should be considered in brachycephalic dogs with severe clinical signs associated with laryngeal collapse that have failed to respond to treatment with arytenoid lateralization and/or surgery of the soft palate, nares, and saccules.
- 2** Complications following permanent tracheostomy can be expected. Fatal complications are most likely to occur in the first month postoperation. Dogs that survive the first 16 weeks postoperation are likely to survive long-term or die of unrelated causes.
- 3** Stoma management is demanding for owners to perform, mainly because of the frequency of cleaning. In the present study, when a revision surgery was recommended due to stenosis, dehiscence, or obstruction by skin folds, dogs of owners who elected for revision survived long-term or died of unrelated causes; thus, owner education and owner commitment are critical for procedure success.

References

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Suggested Reading

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- Liu NC, Oechtering GU, Adams VJ, Kalmar L, Sargan DR, Ladlow JF. Outcomes and prognostic factors of surgical treatments for brachycephalic obstructive airway syndrome in 3 breeds. *Vet Surg.* 2017;46(2):271-280.
- Worth DB, Grimes JA, Jiménez DA, Koenig A, Schmiedt CW. Risk factors for temporary tracheostomy tube placement following surgery to alleviate signs of brachycephalic obstructive airway syndrome in dogs. *J Am Vet Med Assoc.* 2018;253(9):1158-1163.

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