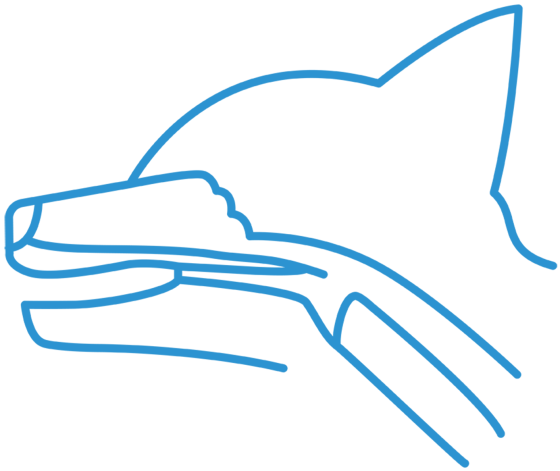


Upper Airway Disorders

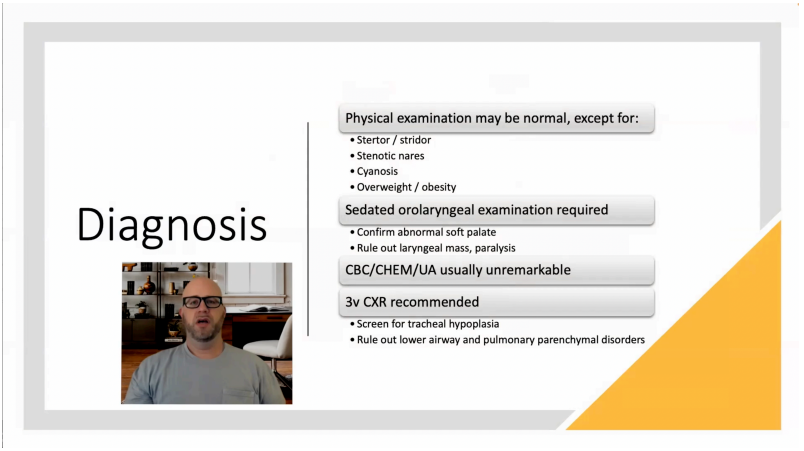
drip 4

version 1

Instructor: Dr. Christopher G. Byers, DVM, DACVECC, DACVIM (SAIM), CVJ

Be advised that this document is intended to enhance your learning experience. It is created primarily from an audio transcription of the instructor's lecture. Therefore it is NOT designed to meet the standard of a textbook or proceedings. Please excuse minor grammar and typographical issues. You are welcome to print and use it for notetaking and strengthening your learning.

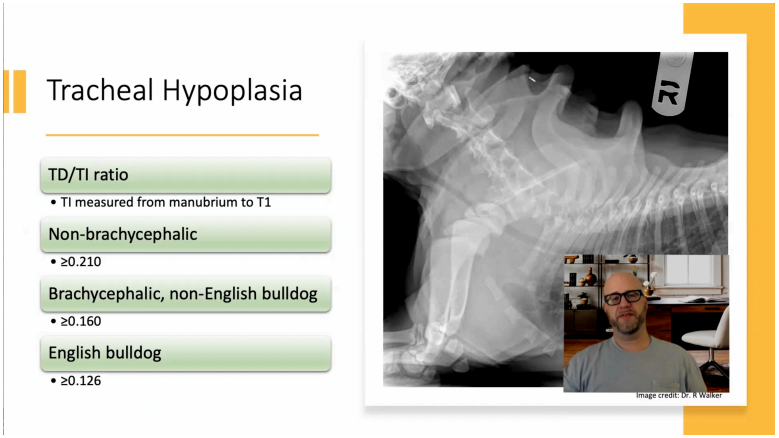
All rights reserved. Veterinary Information Network, Inc. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the copyright owner.



How is this diagnosis made? It starts at the physical exam. You're going to hear that stertor or stridor. You're going to see the stenotic nares. But ultimately, you are going to need to do a sedated orolaryngeal examination. Why? Because you need to look at the severity of elongation and edema of the soft palate.

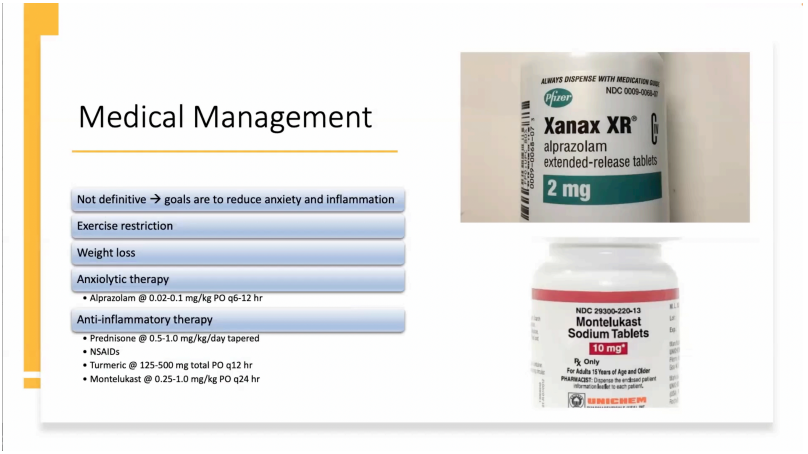
You need to evaluate the laryngeal motion to determine has this been going on long enough that the larynx has collapsed. Because these patients are ultimately likely going to need some type of surgery, a minimum database of a CBC, CHEM, UA is very, very logical.

And I would advocate for always performing three-view chest radiographs. One, we need to see what that trachea looks like, how hypoplastic is it. And because we're dealing with brachycephalic breeds who like to develop aspiration pneumonia or pneumonopathy, for example, it's important to look at the pulmonary parenchyma as well.



And you may not know it, but there's a specific way to determine if a trachea is hypoplastic. You are measuring the tracheal diameter, or TD, to the diameter of the thoracic inlet, or TI. And that thoracic inlet is measured at the level of the manubrium to the first thoracic vertebra.

And here you can see what is expected in specific breeds and general brachycephalic dogs that are non-English Bulldogs. English Bulldogs get their own categorization. But you can do this very easy measurement, especially now with digital radiography, to determine if your patient's trachea is truly hypoplastic.



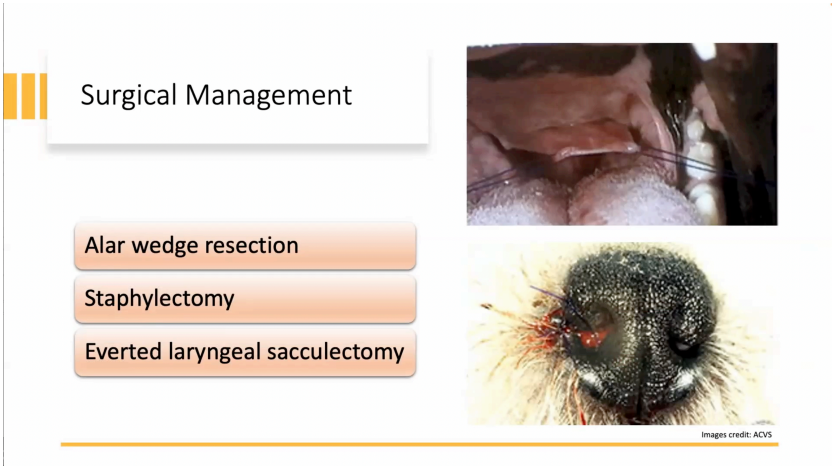
Medical management is all about reducing, controlling inflammation, and reducing and controlling anxiety. These airways are obviously not normal. And so we want to minimize physical activity, anxiety, stress. If they're chunky, if they're overweight or obese, we need to develop a very specific weight-loss program.

And when I'm talking about weight loss in these patients, it's not the "Mrs. Smith, we really need to just work on some weight loss." No, I mean, consider it a drug, a prescription for weight loss. And you're going to track it and hold mom and/or dad's hand and hold them accountable for getting weight off.

It is so important to reduce the work of breathing in these patients. I really like to use alprazolam for anxiolytic therapy. Other options would be trazodone, for example. I've just used alprazolam more, and that's why I reach for it more frequently. And then in terms of anti-inflammatory therapy, there is no perfect protocol.

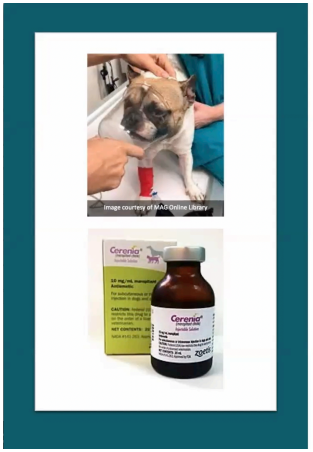
I like a tapering dose of corticosteroid as long as there is no contraindication to doing so. And then depending on response, I may add in an anti-leukotriene like Montelukast, or I may consider a complementary supplement like turmeric, which has anti-inflammatory properties through modulation of interleukin 1 beta and interleukin 6.

Some people like NSAIDs. In my hands, NSAIDs don't work as well as corticosteroids, so I don't usually reach for an NSAID. And certainly, we all know that we never want to combine NSAIDs and corticosteroids and anti-inflammatory doses in these patients.



The best ultimate intervention for these patients is surgical manipulation of the abnormalities we can address so we can correct stenotic nares via an alar or wedge resection. We can correct an elongated edema to the soft palate via a staphylectomy.

Why it's not called a palatetectomy is unknown to me. It seems like it's a very reasonable word, but to the entomologists out there, I guess we have to go with staphylectomy. And then, of course, similarly, those everted laryngeal saccules can also be resected.



Sedation / Anesthesia Considerations

7% have post-operative complications

- English bulldogs, French bulldogs, and Pugs: relative risk for aspiration pneumonia 3.77x that of other dogs
- GI signs and increased age associated with non-survival

Regurgitation / reflux always concerning

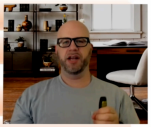
- PPI: omeprazole 1 mg/kg PO q12 hr for at least 1 day before elective procedures
- Use antiemetic as part of pre-medication protocol
  - Metoclopramide @ 0.5 mg/kg IV or SC
  - Maropitant @ 1 mg/kg IV or SC
  - Dolasetron @ 0.6 mg/kg IV or SC
  - Ondansetron @ 1 mg/kg IV

No preanesthetic protocol prevents regurgitation but can reduce nausea / vomiting induced by opioids

Pre-oxygenation for 5-10 minutes

Smooth rapid induction

- Propofol @ 4-8 mg/kg IV titrated to effect over 60-90 seconds
- Alfaxalone @ 1.5-4.5 mg/kg IV titrated to effect over 60 seconds



Must be monitored exquisitely

Ideally hospitalize for at least 1 night of observation

From an anesthesia standpoint, I cannot underscore the importance of recognizing that these patients have a very high percentage of post-operative complications. 7% is nothing to pooh-pooh.

And in terms of aspiration pneumonia, aspiration pneumopathy, English bulldogs, pugs, French bulldogs, this is documented, they have almost a four-time likelihood of developing aspiration pneumonopathy compared to other dogs.

And in some studies, the presence of GI signs and being older, being 4, 5, 6, instead of 1, 1 and 1/2, 2, are associated with a negative prognosis.

Regurgitation, reflux, because of their brachycephalic conformation is always a concern, and I would strongly advocate for initiating proton pump therapy, proton pump inhibition therapy specifically, at least 24 hours before any elective procedure.

I would also incorporate at least one antiemetic, if not two, I usually use Maropitant and Ondansetron in my pre-medication protocol. But we need to remember that there is no anesthesia protocol that is going to prevent regurgitation.

Regurgitation may still happen regardless of how proactive one is. But these antiemetics can actually reduce nausea or vomiting that is associated with, for example, an opioid that one uses in their anesthetic protocol.

These patients should be pre-oxygenated as standard, but really important not skip that step. And we're looking for a nice smooth induction. I like to use Propofol. Others like to use Alfaxalone. Whatever you have, we want a nice smooth induction, and then they need to be monitored.

And I would say that these patients should be hospitalized overnight and hopefully go home the following day. But I am not a fan of sending them home the same day. And that's because of the risk of these post-operative complications.

I have done too many expert witness testimonies for this very scenario where patients were sent home too soon, had expected complications and very unfortunate outcomes that probably would have been cut a heck of a lot sooner had the patient remained in hospital for that one night.