

Caring for Brachycephalic Patients

Vanessa Leiser, LVT, VTS (IM-Neurology)

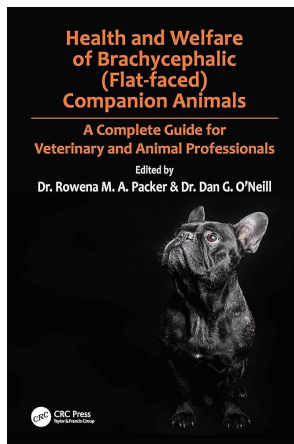


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LVT 2017

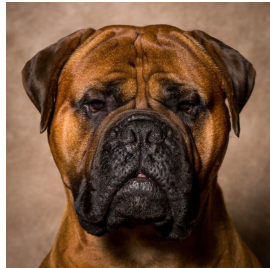
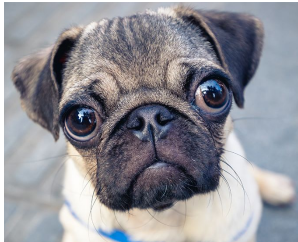
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Brachycephalic Breeds - Not Just Frenchies!

- Bulldogs
- Boxer
- Pugs
- Boston Terriers
- Shih Tzu
- Pekingese
- Bullmastiff
- Japanese Chin
- Cavalier King Charles Spaniel
- Brussels Griffon
- Lhasa Apso
- Shar Pei
- Staffordshire Bull Terrier
- Tibetan Spaniel
- French Bulldogs
- Dogue de Bordeaux



Brachycephalic Felines

- Persian
- Exotic shorthair
- Burmese
- Scottish Fold
- Himalayan
- Ragdoll
- Devon Rex

**Some cats exhibit brachycephalic traits,
but BOAS emergencies are uncommon**



Overview

Brachycephalic syndrome refers to the combination of **elongated soft palate, stenotic nares, and everted laryngeal saccules**

Elongated soft palate is where the soft palate is too long so that the tip of it protrudes into the airway and interferes with movement of air into the lungs

Stenotic Nares are malformed nostrils that are narrow or collapse inward during inhalation, making it difficult to breath through the nose

Everted Laryngeal Saccules is where there is tissue within the airway, just in front of the vocal cords, and pulled into the trachea (windpipe) and partially obstructs airflow.

Some dogs may also have a narrow trachea, collapse of the larynx (the cartilages that open and close the upper airway), or paralysis of the laryngeal cartilage

Elongated Soft Palate

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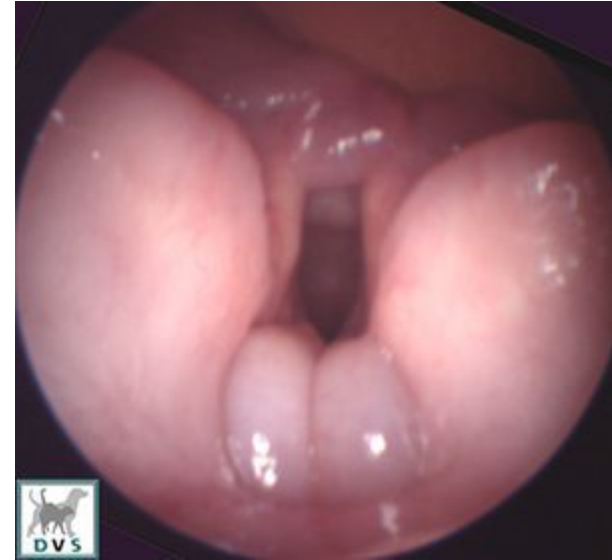
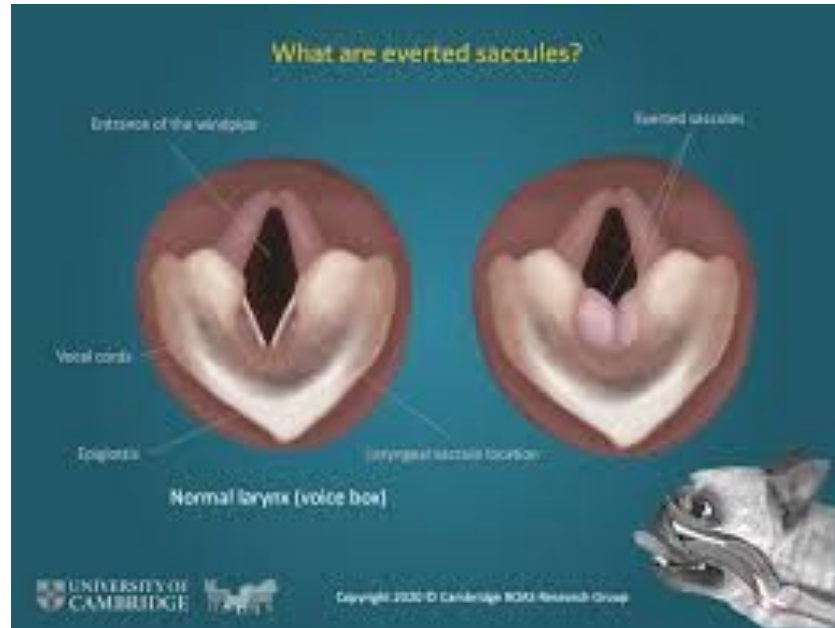


Stenotic Nares



Stenotic Nares are malformed nostrils that are narrow or collapse inward during inhalation, making it difficult to breath through the nose

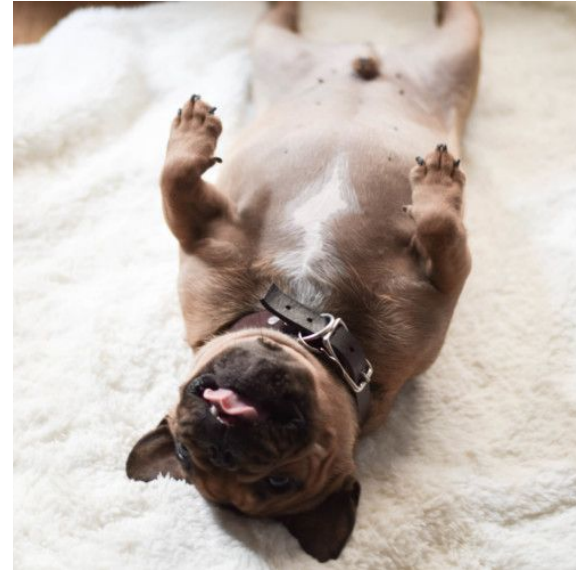
Everted Laryngeal Saccules



Everted Laryngeal Saccules is where there is tissue within the airway, just in front of the vocal cords, and pulled into the trachea (windpipe) and partially obstructs airflow.

Signs & Symptoms

- Noisy breathing- especially on inspiration
- Retching or gagging while swallowing
- Coughing
- Exercise intolerance
- Cyanotic
- Difficulty breathing
- Occasional collapse episodes
- Sleep on their back



Acute Complications

- Edema & Inflammation
- Hypoxia
- Heat Stress- Hyperthermia
- Non-Cardiogenic Pulmonary Edema
- Obstruction
- Aspiration Event
- Distress
- **GI signs- vomiting, regurg, and diarrhea**
 - Brachys are 66% more likely to develop GI signs than other dogs



Gastroesophageal Reflux

- GOR is thought to occur secondary to the negative pressure required to breathe
 - Regurgitation Reflux
 - Esophagitis Vomiting
 - Hiatal hernia Pneumonia
 - Retching Irritation of the pharyngeal tissues
 - Esophageal stricture
- Brachycephalics are at higher risk for developing aspiration pneumonia due to their higher risk of regurgitation and reflux.
- It is not unusual to see these patients with aspiration from a young age (<6 months)



What changes can we implement?



Brachycephalic Care Protocols

History Taking



Care Plans



Nursing Care



Monitoring



Emergency Plan



Anesthesia Considerations



Brachycephalic Care Protocols

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Anesthesia Considerations



History Questions

- Does the patient get anxious at the vet?
- Do they snore?
- Can you hear them breathing from the next room?
- Do they struggle to breath while sleeping?
- Do they wake up suddenly and distressed?
- Can they play or go on walks?
- Do they faint or collapse?
- Have they had upper airway surgery?



The image shows three overlapping forms titled 'DOCTOR VISITS'. Each form has a header with the title and a small icon of a person. Below the header, there are columns for 'DATE', 'TIME', and 'NOTES'. The forms are arranged in a slightly offset, overlapping manner, with the top form in light blue, the middle one in light green, and the bottom one in light orange.

Brachycephalic Care Protocols

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Emergency Plan



Anesthesia Considerations



Care Plans

Anti-Anxiety plans- can be implemented prior to visit or upon arrival

May include trazodone, gabapentin, butorphanol, acepromazine, and dexmedetomidine

Other medications

Starting antiemetics, prokinetics, gastric acid reducers to help minimize aspiration events. Starting steroids/anti-inflammatories to help with airway swelling



How Can We Help Prior to Appointment?

- Omeprazole 1 mg/kg PO BID 1-2 weeks prior to anesthesia
 - Reduces the risk of postoperative regurgitation, esophagitis, and aspiration pneumonia
- Omeprazole 1 mg/kg at least 4 hours prior to the induction of anesthesia to reduce gastroesophageal reflux



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Anesthesia Considerations



Nursing Considerations

- Harness walks
 - Prevents pressure on the upper airway and trachea
- Nebulization Treatment
 - Using hypertonic saline can help with edematous airway
 - Never force- can work them up more
- Cooling
 - Typically prefer to be cooler and happier with a fan
- Eye lubrication
 - Prevents ulcers, especially while using a fan
- Stay away from active warming- do not accidentally over heat (frequent temp checks)
 - Utilize lower temperatures- panting causes airway swelling
- Always be able to visualize the patient



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Emergency Plan



Anesthesia Considerations



Monitoring

- **Respiratory Rate & Effort**
 - Essential to take in the effort and look out for dyspnea
- **Respiratory Noise**
 - Snoring? Stridor (harsh grating sound)? Stertor (snore or low pitched harsh breath)? No noise? Monitor these trends
- **Behavior**
 - Calm? Stressed? Excited? Aggressive?



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Nursing Care



Monitoring



Emergency Plan



Anesthesia Considerations



Emergency Plan

- Having oxygen at the ready for these patients
- Having an ET tube outside/ready by the cage
- Agreeing not to wait- but administering a sedative and taking the airway sooner
- Suction at the ready
- Monitoring equipment? Tongue depressors?
- What else can we do/add? Suggestions?



Brachycephalic Care Protocols

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Emergency Plan



Anesthesia Considerations



Pre-Op/Induction Medications

- Omeprazole (Pantoprazole) 1 mg/kg q12hr
 - Best 4 hrs prior to induction
- Metoclopramide
- Cerenia
- Avoid NSAIDs
- Methadone and Buprenorphine are the most common opioids
- Give gabapentin & trazodone pre-op ideally to help prevent being worked up post-op



Repeating Opioids?

- Suggested to decrease opioids and add in ketamine, paracetamol, anti-inflammatories to reduce opioid side effects
- This is suggested to reduce side effects caused by opioids- ketamine for example has less side effects
 - Respiratory depressant effects
 - Sedation
 - Vomiting
 - Regurgitation
 - Panting - altered airflow & increased risk of airway swelling
- Give opioids as pre meds but don't repeat that second dose/don't continue the CRI



Post Procedure

- Brachycephalic patients are used to having a higher CO₂ than other dogs
 - May take longer to wean them off of a ventilator
- If struggling, don't wait until obstructed or too emergent to intubate- intubate/sedate sooner
- Using towels to keep head up/in sternal recumbency can actually occlude and be harmful
 - Look into alternative options (bracy-racks)
- Individual fans & sound machines for cages are proven to help keep brachy patients calmer and keep cooler
 - Remember to lube eyes more often if fan is in use
 - Try to eliminate use of heat support

Brachy Racks



Ways We Can Medicate Post Op

- Rectal trazodone
 - 8 mg/kg rectal slurry in red rubber
 - Ideally give this before worked up/while still intubated
- Can give gabapentin/trazodone in NG tube during recovery
- Nothing oral before eating/ready
- Acepromazine & alpha 2 agonists relax the muscles of the nasopharynx and oropharynx risking further airway obstruction- low dose & monitor closely
- Continue omeprazole/pantoprazole
- Our #1 goal post op is keeping them cool & calm

NSAIDs vs Steroids

Are we open to not using NSAIDs- regardless of procedure, and switching to steroids for inflammation/swelling?

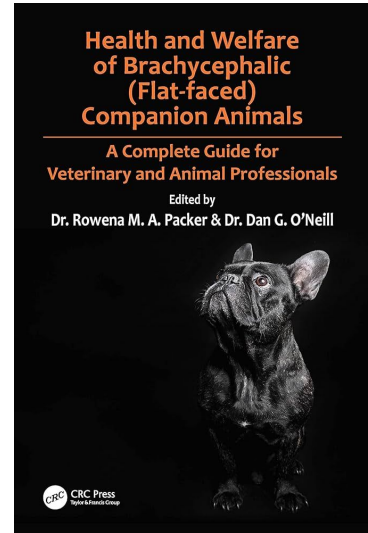


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What Changes Were Made?

- Program templates/history taking sheets
- Monitoring hospitalization template
- Monitoring anesthesia template
- Setting up special brachycephalic cages
- Call or text to start medication prior to appointment?
- Medication for post op/recovering patients (NOTHING PO!!!!)
- Anything else?



QUESTIONS?

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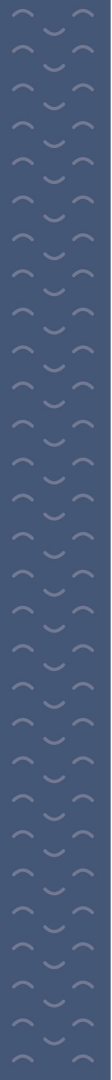
Richmond, VA



Sources

<https://www.acvs.org/small-animal/brachycephalic-syndrome/>

Packer, Rowena, and Dan O'Neill. *Health and Welfare of Brachycephalic (Flat-Faced) Companion Animals: A Complete Guide for Veterinary and Animal Professionals*. CRC Press, 2022.



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