

Approaches to food bloat

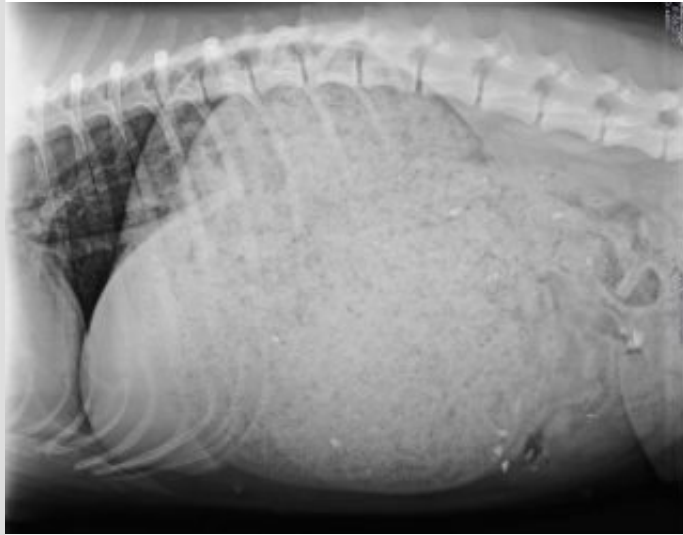
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Gastric distension due to excessive food intake (food bloat) is a relatively common condition encountered in general practice and, in the author's experience, is almost exclusively a canine problem.





Figures 1 (top) and 2. Single right lateral abdominal radiographs are usually diagnostic.

It is not a condition to be underestimated as, without prompt and appropriate management, a significant risk of morbidity and mortality exists. Based on a very subjective assessment of cases referred to the emergency services in the hospital the author works at, most cases are younger dogs of medium to large size with an apparent preponderance of retrieving breeds, which may just reflect the population of dogs within the hospital's catchment area.

A literature search on the subject is hampered by a lack of any standardised terms. Using various combinations of "gastric", "hyperphagia", "overeating", "food", "distension", "bloat", "dog" and "canine" merely serves to highlight the paucity of published material on the subject, and surfing various veterinary forums garners a range of personal opinions from veterinary surgeons – the lowest level in the standard evidence hierarchy.

The majority of cases are presented within a few hours of ingestion, with owners volunteering the information that the patient has gained access to a large amount of food. It is important to make an effort to ascertain what the stomach contents may be. More than 90 per cent of cases presented to the emergency service in the hospital the author works at have ingested dried "kibble-type" dog food – although the dog that ate a whole shepherd's pie and the glass dish in which it was cooked does tend to linger in the memory.

A full history and clinical examination are essential as it is all too easy to be overly "gastrocentric". Other differential diagnoses need to be eliminated and factors such as conformation or co-morbid disease may well influence decisions vis-à-vis treatment.

On initial presentation, routine clinical examination can reveal a range of clinical signs suggestive of food bloat. Abdominal palpation will usually reveal a mass in the anterior – or occasionally, apparently, the whole abdomen, which feels “doughy” – and will elicit evidence of discomfort varying from mild tenderness to severe pain. In early cases, the patient is usually bright and alert, with relatively normal clinical parameters, but longer-standing cases can be markedly depressed, with symptoms consistent with dehydration and hypovolaemic shock. About half of cases will show moderate to marked tympany and some respiratory compromise may be apparent.

Retching and, occasionally, production of small amounts of vomitus may also exist; however, in those cases where normal physiological vomiting has occurred, it is rarely successful in resolving the problem, at least in those cases presented – obviously, it is not possible to say how many have been resolved by simple vomiting at home.

A provisional diagnosis is normally fairly straightforward, based on presenting signs and history, but all cases should have imaging to rule out gastric volvulus and other likely causes of sudden abdominal distension – for example, splenic torsion, ruptured splenic tumour, intestinal volvulus, aerophagia and cardiac tamponade secondary to pericardial effusion.

Single right lateral abdominal radiographs are usually diagnostic (**Figures 1 and 2**), but if in doubt then orthogonal views should be taken and some cases may require an ultrasound scan. Once a firm diagnosis has been made, and other differentials ruled out, time needs to be taken to discuss treatment options available and their likely risks. Owners often feel this is a trivial – and, to some extent, humorous – problem; they need to be made aware of its potential severity and that no “risk-free” treatment option exists. Common to all cases is the need to assess the patient’s analgesia and fluid replacement requirements.

Analgesia

Depending on the substance that has been eaten, cases in which the ingestion has been recent and in which vomiting has been successfully induced may have little or no need for analgesia and can usually be sent home within an hour of presentation.

As aforementioned, the patient’s discomfort can be very variable – for cases with mild discomfort, maropitant can be given at normal clinical doses for its effect of reducing visceral pain. If induction of emesis has been the treatment of choice then this has the added advantage of reducing nausea and persistent vomiting post-treatment, which makes the patient more comfortable. However, administration should be delayed until sufficient vomitus has been produced or when emesis as a treatment option has been discarded.

For those cases with more marked discomfort, analgesia with low-level opiates – for example, buprenorphine – can be used, despite possible anti-peristaltic effects. Beware, marked discomfort following an apparently successful management of excessive food intake is rare and any

continuing need for analgesia should raise a suspicion this is due to another condition and the patient should be monitored and/or investigated appropriately.

Fluids



Figure 3. Most common commercial foods will absorb between 3ml/g to 4ml/g of an isotonic fluid, resulting in a trebling of volume over a period of four to five hours.

Dried kibble-type foods will absorb water and swell, contributing further to the problem. Experimenting with a variety of common commercial foods showed most will absorb between 3ml/g and 4ml/g of an isotonic fluid, resulting in a trebling of volume over a period of four to five hours (**Figure 3**).

So, in theory, a 25kg dog that has eaten 1kg of dried food (nothing exceptional for a determined Labrador retriever) could lose up to 3L of fluid into the gastric contents (approximately 150 per cent of its circulating volume) and the original volume of kibble (approximately 1.6L) could increase to something approaching 5L in an animal whose maximal normal gastric volume would be 2.25L (90ml/kg).

This in vitro testing does not take into account factors such as counter-pressure from the gastric wall opposing the osmotic pressure, but it does emphasise the need to consider fluid replacement for those cases in which any significant delay is apparent between ingestion and presentation. Four options are commonly recommended for definitive management.

“Watch and wait”

The rationale behind the “watch and wait” approach is based on the theory gorging on food is the norm for wild canids whenever possible and, therefore, is a natural occurrence for which they have evolved physiological coping mechanisms. The majority of cases the hospital the author works at

sees in practice have usually ingested dried kibble-type food, rather than meat or similar, with consequent progressive problems related to fluid absorption.

Treatment consists of clinical observation, combined with frequent access to water and short lead walks every 30 minutes or so.

Provided there are no contraindications, many clinicians, including the author, will combine this with parenteral metoclopramide to promote upper gastrointestinal peristalsis and relaxation of the pyloric sphincter. Ideally, radiographs should be repeated at intervals of several hours to confirm some progress.

Gastric lavage

Gastric lavage under general anaesthesia is recommended by some practitioners; however, in the author's experience, this has been 100 per cent unsuccessful, even with large-bore stomach tubes, and significantly increasing the risk of rupture by artificially increasing the intragastric pressure allied to inadvertently "prodding" the wall with the tube in an already over-distended stomach.

Furthermore, when the patient is anaesthetised, the distended and weighty stomach can cause respiratory compliance problems by pressure on the diaphragm and, if the patient is placed in dorsal recumbency, occlusion of venous return, so these dogs are suboptimal candidates for general anaesthesia.

Removal of gastric contents via gastrotomy

A good argument exists for a surgical approach in cases where less dramatic approaches have failed, or in long-standing cases where the food has become almost inspissated, but it is difficult to justify adding in the risks associated with abdominal surgery allied to the potential anaesthetic problems outlined previously as a first line treatment in early cases. To date, the author has never had to perform a gastrotomy for an uncomplicated case of food bloat.

Induction of vomiting



Figure 4. Successful induction of vomiting, in most cases, eliminates the source of the problem.

Induction of vomiting is the author's preferred first line of treatment for most cases, as a successful induction of vomiting eliminates the source of the problem (**Figure 4**).

A concern exists among some clinicians that this may lead to gastric rupture and the scenario of uterine rupture following the use of ecbolics in parturition/pyometra is often cited. However, parenteral emetic drugs, such as apomorphine, act to induce vomiting at a central level, thus inducing "normal strength" contractions of the gastric wall, unlike ecbolics, which exert their effect by stimulating the organ musculature directly.

In the author's opinion, the risk of gastric rupture is relatively low in comparison with the risks associated with general anaesthesia and either gastric lavage or surgical gastrotomy. However, some caveats and contraindications exist.

In common with management of recently ingested foreign bodies, the most important contraindication would be the presence of sharp objects in the stomach and caution has to be used in patients with cardiac disease, those predisposed to vasovagal syncope – for example, brachycephalics – and any that have had recent major abdominal or thoracic surgery.

Following an apparent successful induction of vomiting, radiographs should, in theory, be repeated.

However, if a subjective comparison of the amount of vomitus with the original diagnostic radiographs indicates most, if not all, the stomach contents have been produced then this step can probably be omitted.

Summary

In summary, this article is the one clinician’s approach to these cases – it is not intended to be a definitive “standard of care” and comments and suggestions from readers will be welcome.