Hamman's Crunch; a pathognomic sign of pneumomediastinum

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Background

Pneumomediastinum is defined as the presence of air or gas within the mediastinum and is most commonly seen secondary to trauma. Spontaneous pneumomediastinum is uncommon and presents a diagnostic challenge. In human medicine, auscultation of Hammam's crunch, a crepitant crunching noise audible over the cardiac region in synchrony with the heartbeat, is considered pathognomonic for pneumomediastinum patients (Sahni *et al.* 2013, Alemu *et al.* 2021). There are only three reported cases of equine spontaneous pneumomediastinum (Smith and Marr 2019), but this is the first case report to highlight the diagnostic utility of Hammam's crunch in the horse.

Case details

A 487kg 9-year-old Warmblood gelding was referred for investigation of suspected equine grass sickness (EGS). Twenty hours prior to referral, the horse was recumbent in the field, appeared distressed and painful, with puffing respiration, generalised sweating, marked muscle fasciculations, reduced appetite, tachycardia (80 beats/min), quiet gut sounds and partial penile prolapse. There was a partial improvement in clinical signs following flunixin administration, but continued tachycardia (60 beats/min) prompted referral for further investigation and treatment.

Case progress

Timing	Clinical signs	Pain score	Hamman's crunch	Imaging	Treatment	Diagnosis
Initial presentation	Increased HR, RR, narrow stance, muscle fasciculations, ptosis, patchy sweating	3/3	Not noted (possibly not present or auscultation limited by tachypnoea and muscle fasciculations)	Abdominal US NAD	Analgesia (flunixin 1.1mg/Kg IV BID) and IVFT	Equine grass sickness considered most likely diagnosis
Re-examination	Pleurodynia (thoracic pain) and odynophagia (pain when swallowing)	3/3	First noted (scan QR code for audio file)	Pneumo-mediastinum confirmed via US and radiographs	Ongoing flunixin	Pneumo-mediastinum
Day 2	Remained uncomfortable but signs improving	2/3	Still audible but clicks rather than crepitus	-	Ongoing flunixin	Pneumo-mediastinum
Day 3	Markedly uncomfortable and emphysema palpable at thoracic inlet	2/3	Still audible	-	Ongoing flunixin	Pneumo-mediastinum
Day 5	Recumbent, marked pleurodynia	3/3	No longer audible	Radiography and US unchanged	Ongoing flunixin	Pneumo-mediastinum
Days 6 and 7	Transient episodes of discomfort	1/3	Not audible	-	Flunixin as required	Pneumo-mediastinum
Day 11	Clinically unremarkable	0/3	Not audible	Radiographs showed resolution of pneumo-mediastinum	None	Pneumo-mediastinum resolved
15 months post discharge	Clinically well and back in ridden exercise	0/3	Not audible	-	None	-

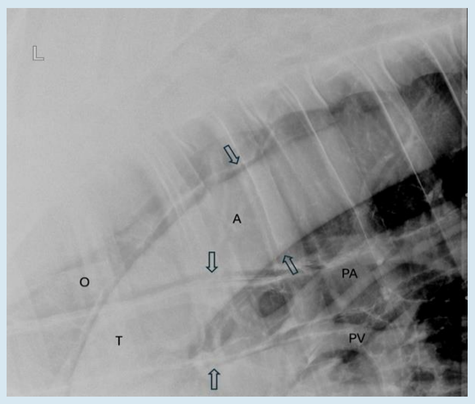
Hamman's crunch

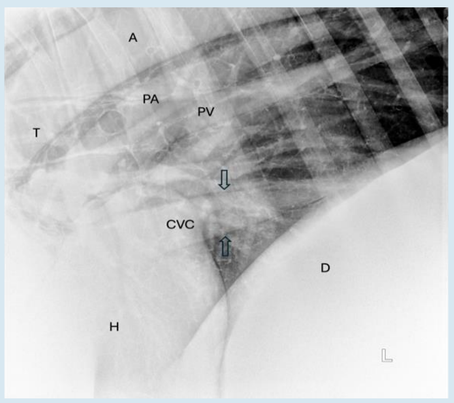
Distinct, crunching sound heard over the heart that is synchronous with the heartbeat

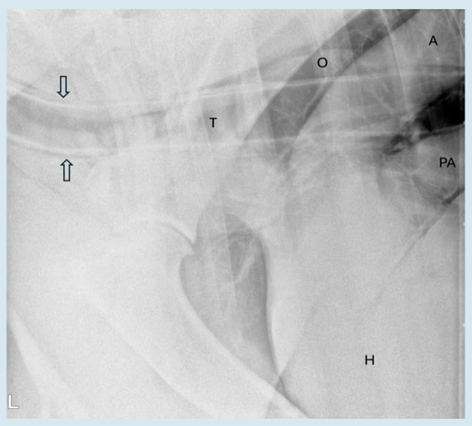
Scan QR code to access recording of Hamman's crunch

Imaging

DAY 1

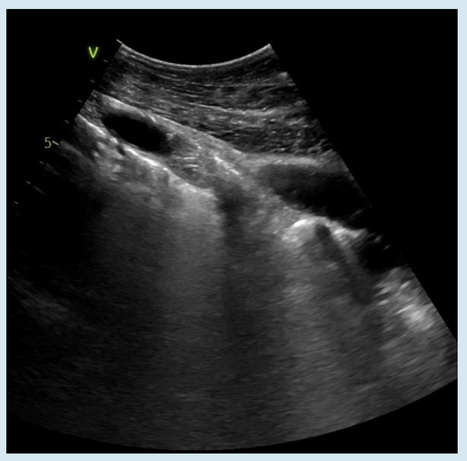


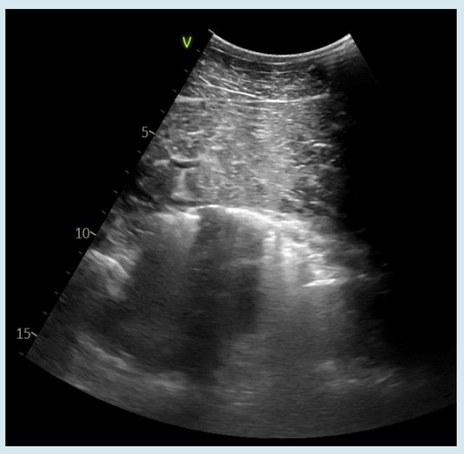




Latero-lateral radiographs of the thorax taken on day 1 after admission showing delineation of the major vessels with linear gas opacity (arrows). There is also gas around the thoracic trachea and oesophagus.

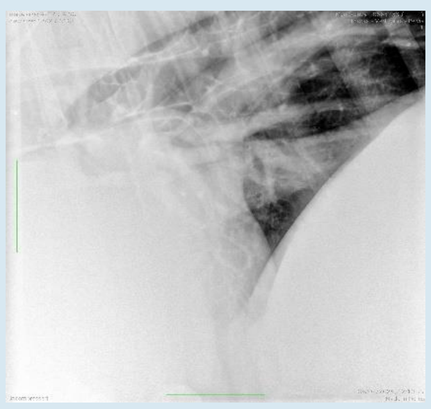
A aorta, CVC caudal vena cava, D diaphragm, H heart, O oesophagus, PA pulmonary artery, PV pulmonary vein.





Ultrasonograms taken at the thoracic inlet showing shred artefacts due to gas surrounding the great vessels within the cervical fascial planes.

DAY 11



Latero-lateral radiographs of the cranial thorax taken on day 11 showing resolution of pneumomediastinum

Key points from discussion

- Highlights diagnostic utility of Hamman's crunch for diagnosis of equine pneumomediastinum.
- Clinical presentation of pleurodynia and odynophagia differed from that of the three previously reported cases (Smith and Marr 2019).
- Ultrasonography was more sensitive for detection of air within fascial planes of the thoracic inlet than palpation.
- Despite the dramatic clinical presentation, equine spontaneous pneumomediastinum is associated with a good prognosis.

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References

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