

## **Case 15169**

### **Gas bubble artifact**

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**Section:** Abdominal Imaging

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**Patient:** 52 year(s), male

## **Clinical History**

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A 52-year-old male patient presented with a brain space-occupying lesion which was highly suspicious of metastasis. He had a recent history of small bowel obstruction managed conservatively with nasogastric decompression.

## **Imaging Findings**

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A multiphase abdominal CT was performed to search for a primary tumour.

The arterial phase CT showed a curved tubular air-density structure along the lesser curvature of the stomach, with complete disruption of the gastric wall at its extremities. No other abnormalities were depicted.

On portal phase CT, the tubular structure was no longer conspicuous.

## **Discussion**

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The gas bubble artefact is an uncommon finding that occurs exclusively with helical computed tomography and was described for the first time in 2008 by Franklin Liu et al.

Its mechanism is as follows: an air bubble moving through a liquid medium during the acquisition process results in a distorted sinogram; consequently, the reconstruction technique (which assumes

that attenuation measurements were obtained from a static object) generates inconsistent data producing the curved tubular shape of the artefact.

Therefore, it represents a combination of a movement artefact and a reconstruction artefact.

The most common location of the gas bubble artefact is within the stomach, particularly from an air bubble that enters a fluid-filled stomach via the gastroesophageal junction in a patient who is lain supine. Other less frequently described locations are the colon and cardiac chambers.

This artefact is clinically relevant as it can obscure wall lesions such as polyps or ulcers or even simulate a medical tube with bowel wall perforation.

The awareness of this easily recognisable artefact is vital in order to prevent misinterpretations.

## Final Diagnosis

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Gas bubble artefact

## Differential Diagnosis List

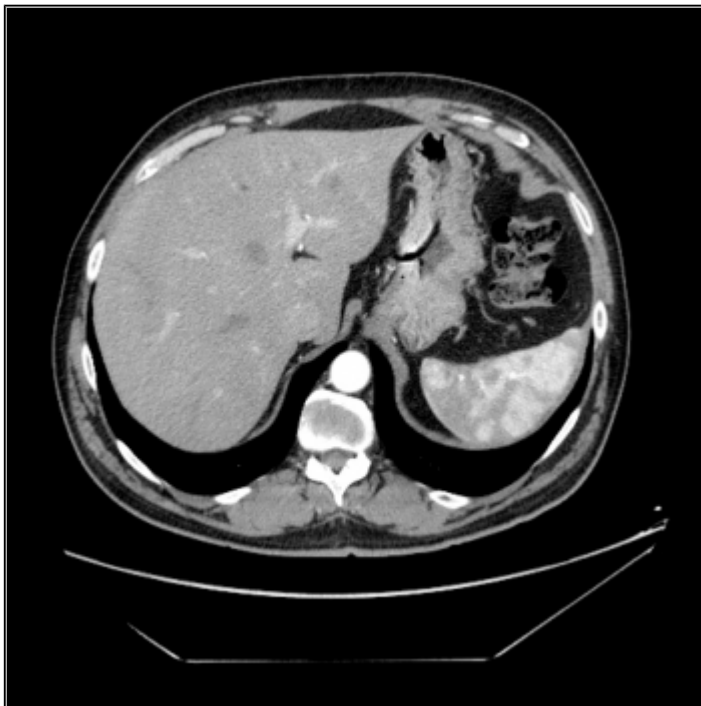
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Medical tube, Bowel wall perforation

## Figures

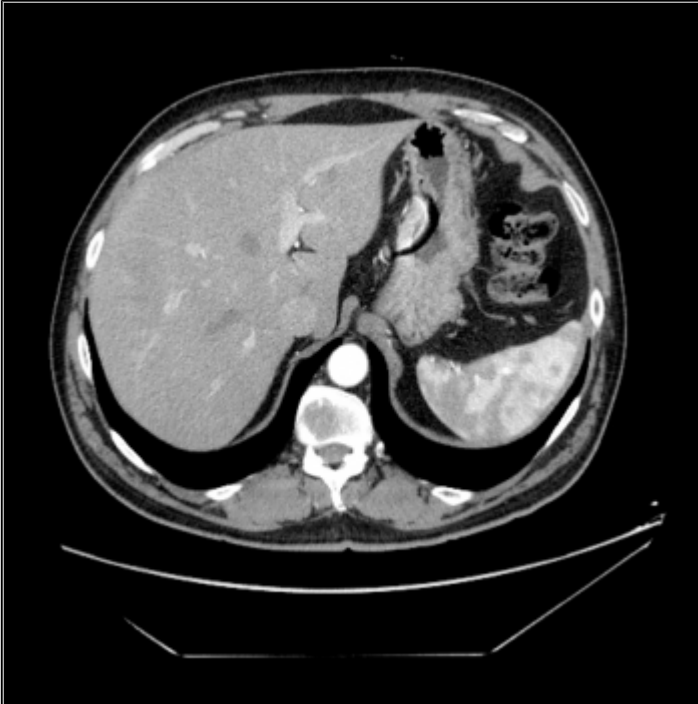
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**Figure 1 Arterial phase CT**



Arterial phase CT shows a curved tubular air-density structure along the lesser curvature of the stomach, with complete disruption of the gastric wall at its extremities.

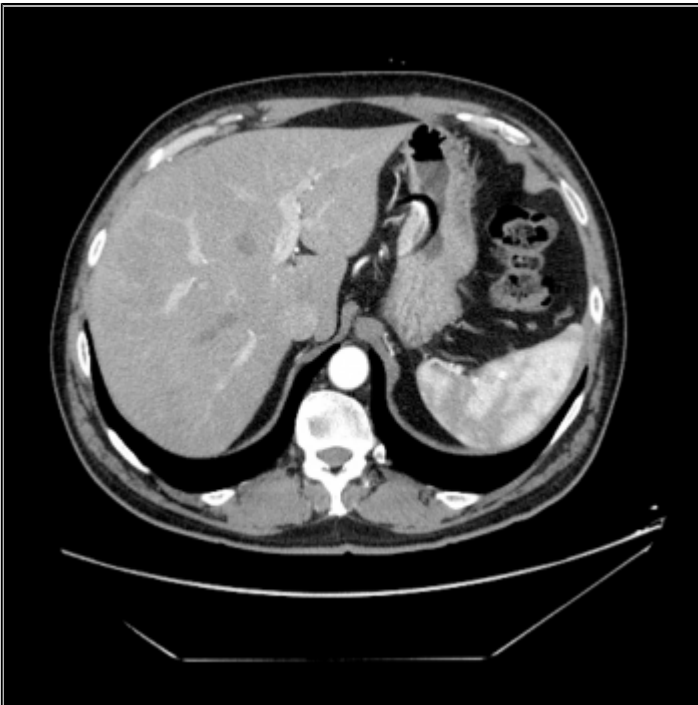
Area of Interest: Abdomen;  
Imaging Technique: CT;  
Procedure: Diagnostic procedure;  
Special Focus: Artefact;



Arterial phase CT shows a curved tubular air-density structure along the lesser curvature of the stomach, with complete disruption of the gastric wall at its extremities.

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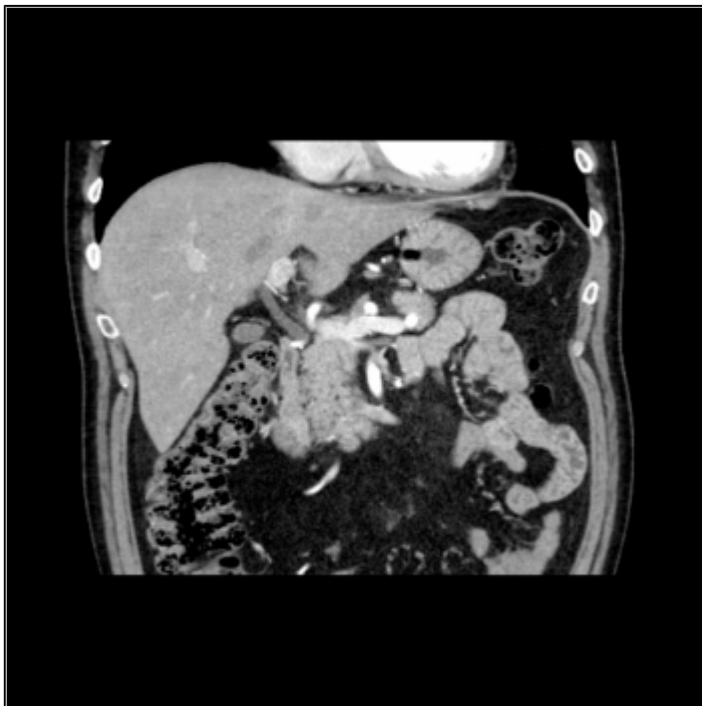
Area of Interest: Abdomen;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

Special Focus: Artefact;

**Figure 2 Arterial phase CT (coronal)**



Arterial phase CT with coronal reformation.

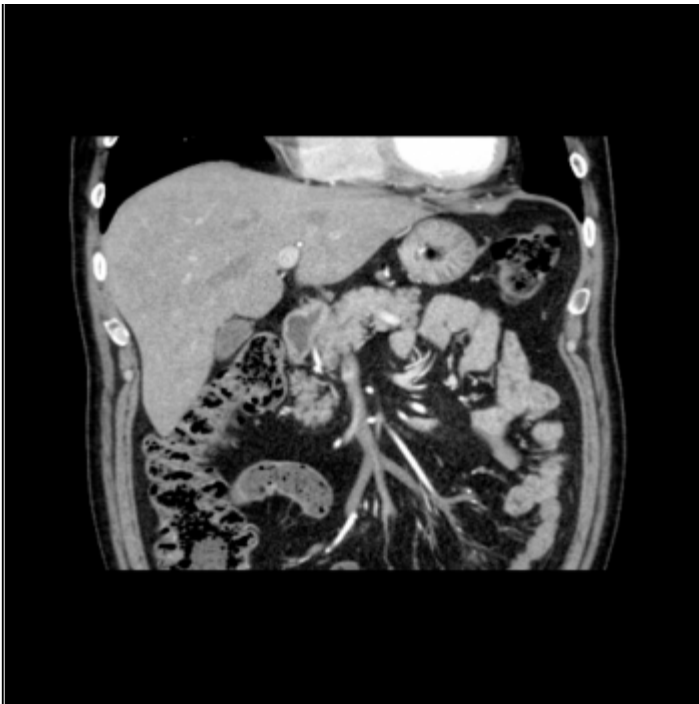
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Area of Interest: Abdomen;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

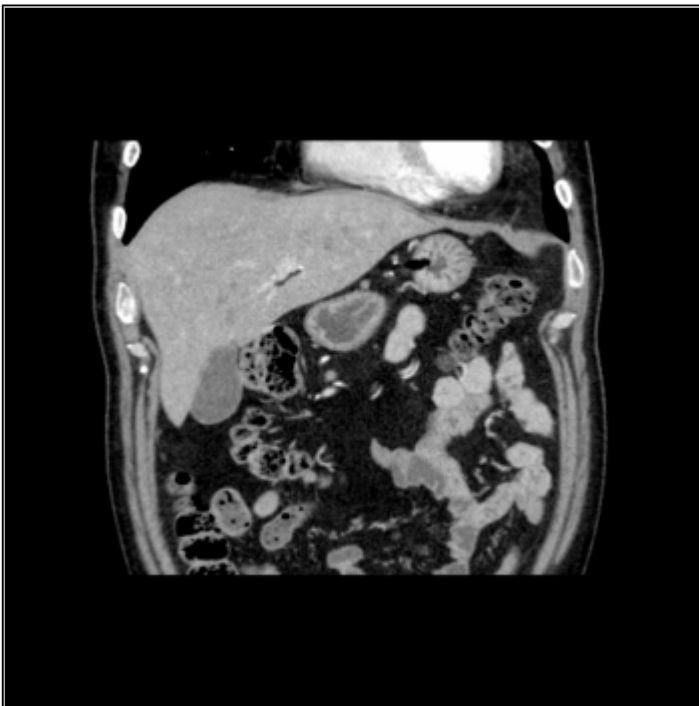
Special Focus: Artefact;



Arterial phase CT with coronal reformation.

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Area of Interest: Abdomen;  
 Imaging Technique: CT;  
 Procedure: Diagnostic procedure;  
 Special Focus: Artefact;

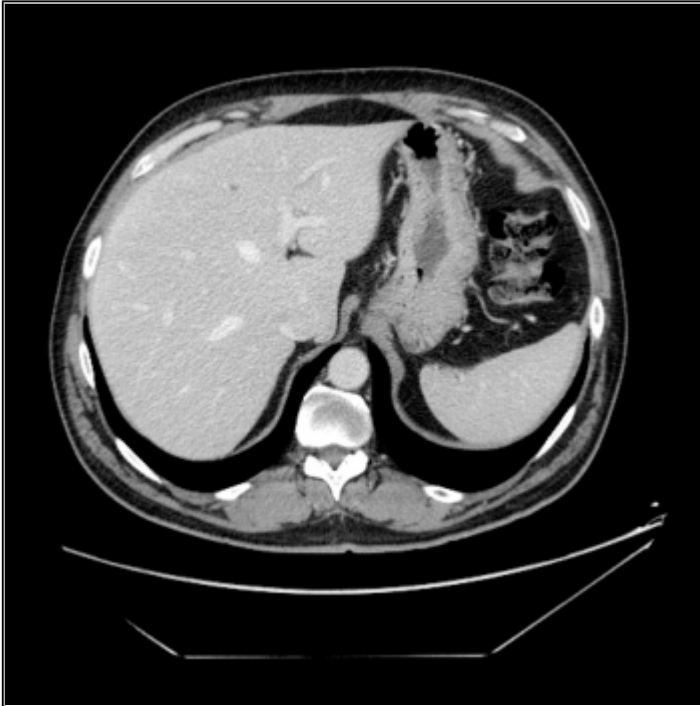


Arterial phase CT with coronal reformation.

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Area of Interest: Abdomen;  
 Imaging Technique: CT;  
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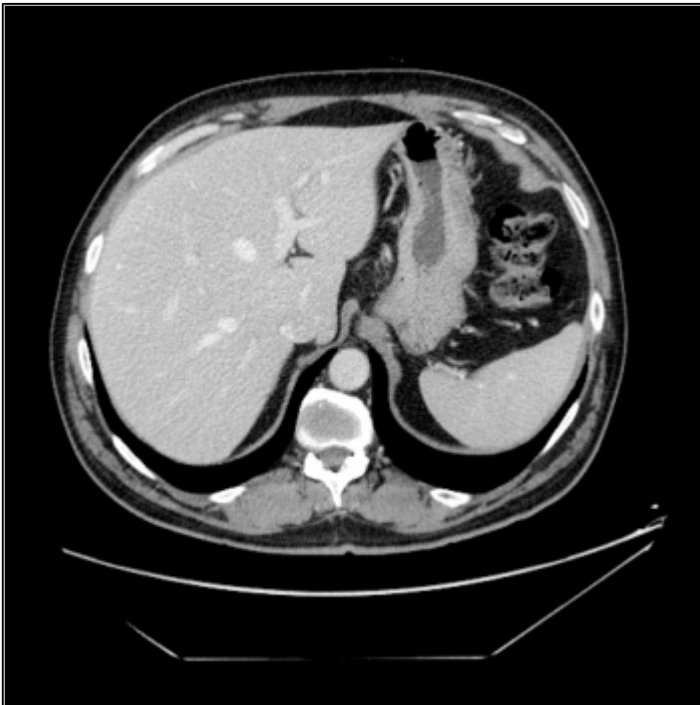
**Figure 3 Portal phase CT**



Portal phase CT shows unremarkable stomach.

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Portal phase CT shows unremarkable stomach.

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Portal phase CT shows unremarkable stomach.

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Area of Interest: Abdomen;  
Imaging Technique: CT;  
Procedure: Diagnostic procedure;  
Special Focus: Artefact;

## References

[1] Liu F, Cuevas C, Moss AA, et al. (2008) Gas Bubble Motion Artifact in MDCT AJR 190:294-299

## Citation

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URL: <http://www.eurorad.org/case.php?id=15169>