Is it just another case of acute uncomplicated cholecystitis? A case of emphysematous cholecystitis an uncommon complication and associated image findings

Sinead Culleton, John Bruzzi

ABSTRACT

Abstract is not required for Clinical Images

All Articles Open Access

International Journal of Case Reports and Images (IJCRI)

International Journal of Case Reports and Images (IJCRI) is an international, peer reviewed, monthly, open access, online journal, publishing high-quality, articles in all areas of basic medical sciences and clinical specialties.

Aim of IJCRI is to encourage the publication of new information by providing a platform for reporting of unique, unusual and rare cases which enhance understanding of disease process, its diagnosis, management and clinico-pathologic correlations.

IJCRI publishes Review Articles, Case Series, Case Reports, Case in Images, Clinical Images and Letters to Editor.

Website: www.ijcasereportsandimages.com

Is it just another case of acute uncomplicated cholecystitis? A case of emphysematous cholecystitis an uncommon complication and associated image findings

Sinead Culleton, John Bruzzi

CASE REPORT

A 78-year-old male presented to the emergency department with a one-day history of sudden onset, acute and severe right upper quadrant pain. He had no known medical or surgical history. On examination he was Murphy's positive, pyrexia and tachycardia. He was not jaundiced. His inflammatory markers were elevated. Two sets of blood cultures were negative. An admission chest X-ray and plain film of the abdomen were both normal. He was treated as acute cholecystitis.

An abdominal ultrasound was performed. His pain was increasing in severity. This showed a markedly distended gallbladder which contained gallstones and sludge. There was low level posterior shadowing and reverberation artifact ("dirty shadowing") from the gallbladder. These findings are due to air or gas in the gallbladder wall. Also, there were a number of tiny echogenic reflectors, which were foci of gas and appeared to be rising towards the nondependent portion of the gallbladder lumen. This is known as the champagne sign and seen in (Figure 1). It is so called as it is thought to resemble the effervescent bubbles of champagne rising from a glass [1–5]. It is specific but insensitive for emphysematous cholecystitis and is also an uncommon finding.

Further imaging was required following these ultrasound findings to confirm the diagnosis. A repeat abdominal X-ray, (Figure 2), confirmed the presence of air in the gallbladder and the diagnosis of emphysematous

cholecystitis suggested on the abdominal ultrasound. A computed tomography scan of abdomen excluded a perforation of the gallbladder and again showed an emphysematous gallbladder. He went for an emergency cholecystectomy but unfortunately died one day later from sepsis.

DISCUSSION

Emphysematous cholecystitis is a condition which is characterized by the presence of gas in the gallbladder wall. This is typically due to gas forming organisms such as *Clostridium welchii* or *Escherichia coli*. Usually, this condition is seen in patients aged 50–70 years. There are a number of ways in which it differs from acute cholecystitis. These are important to recognize as prompt recognition may reduce mortality. Acute cholecystitis is more common in females. However, emphysematous cholecystitis is more commonly seen in males. Emphysematous cholecystitis is also more commonly associated with perforation of the gallbladder

Figure 1: Ultrasound of the gallbladder. Non-shadowing Echogenic foci rising up from the dependent portion of the gallbladder.

Sinead Culleton¹, John Bruzzi²

Affiliations: ¹MB BCH Bao MRCPI, Department of radiology, Galway University Hospital, Galway, Ireland; ²MB, MRCPI, FFRRCSI, FRCR, Department of radiology, Galway University Hospital, Galway, Ireland.

Corresponding Author: Sinead Culleton, Department of radiology, Galway University Hospital, Galway, Ireland; Ph: 00353 87 2684474; Email: cullets@tcd.ie

Received: 24 November 2015

Accepted: 23 December 2015

Published: 01 March 2016

Figure 2: Plain film of the abdomen with air in the gallbladder wall (large arrows).

or acalculous cholecystitis than acute cholecystitis. It is postulated that vascular compromise of the cystic artery, not only plays a role but may also explain the male predilection [2].

It can be clinically challenging to distinguish acute and emphysematous cholecystitis as patients typically present with similar symptoms including right upper quadrant pain, nausea and pyrexia. These symptoms are often insidious but may rapidly progress to this surgically emergent state, requiring urgent surgical intervention. There are few signs or symptoms can confidently differentiate acute complicated cholecystitis from acute uncomplicated cholecystitis and it is imaging that often makes the diagnosis. Acute cholecystitis is a common frequent presentation to the emergency department but it is important to consider is it just another case of uncomplicated cholecystitis? Or could it be an emphysematous gallbladder.

The typical imaging findings seen on ultrasound and abdominal radiographs have been described above. Additional findings on an abdominal radiograph may include an air-fluid level. However, this will only be observed in those radiographs which are taken with a horizontal beam, and are not seen on supine abdominal X-rays. If an abdominal ultrasound suggests that there is air in the gallbladder wall then further imaging either

with a CT of the abdomen or an abdominal X-ray is recommended. A CT scan of the abdomen is considered to be the most sensitive and specific imaging modality for detection of gas within the gallbladder wall or lumen [2]. In addition, a CT scan may demonstrate additional important imaging findings such as air outside the gallbladder wall or lumen, pneumoperitoneum, due to perforation of the gallbladder wall. A pericholecystic fluid collection may also be seen, or dense bile contained within a distended gallbladder.

The mortality rate for emphysematous cholecystitis is quoted as approximately 15–25% compared to 2% for uncomplicated cholecystitis. Emphysematous cholecystitis requires early recognition and treatment to prevent not only patient death, but to reduce morbidity and improve patient and surgical outcomes. The definitive treatment is an urgent cholecystectomy. However, many of these patients are often too unwell for immediate surgery and often have a number of comorbidities making them unsuitable surgical candidates and in such patients a percutaneous cholecystostomy may be an alternative treatment option.

CONCLUSION

It can be difficult to clinically differentiate acute uncomplicated cholecystitis and emphysematous cholecystitis in the early stages of presentation due to a lack of specific clinical findings which can adequately distinguish between these two entities. As emphysematous cholecystitis carries a high mortality rate and imaging can be invaluable in diagnosing complications associated with cholecystitis.

Keywords: Acute cholecystitis, Emphysematous cholecystitis, Champagne sign, Gallbladder, Murphy's positive

How to cite this article

Culleton S, Bruzzi J. Is it just another case of acute uncomplicated cholecystitis? A case of emphysematous cholecystitis an uncommon complication and associated image findings. *Int J Case Rep Images* 2016;7(3):198–200.

Article ID: Z01201603CL10098SC

doi:10.5348/ijcri-201605-CL-10098

Author Contributions

Sinead Culleton – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

John Bruzzi – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© 2016 Sinead Culleton et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original

author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES

1. May RE, Strong R. Acute emphysematous cholecystitis. *British Journal of Surgery* 1971;58(6):453–8.
2. Grayson DE, Abbott RM, Levy AD, Sherman PM. Emphysematous infections of the abdomen and pelvis: a pictorial review. *Radiographics* 2002 May-Jun;22(3):543–61.
3. Wu CS, Yao WJ, Hsiao CH. Effervescent gallbladder: sonographic findings in emphysematous cholecystitis. *J Clin Ultrasound* 1998 Jun;26(5):272–5.
4. Nemcek AA Jr, Gore RM, Vogelzang RL, Grant M. The effervescent gallbladder: a sonographic sign of emphysematous cholecystitis. *AJR Am J Roentgenol* 1988 Mar;150(3):575–7.
5. Jolly BT, Love JN. Emphysematous cholecystitis in an elderly woman: case report and review of the literature. *J Emerg Med* 1993 Sep-Oct;11(5):593–7.

Access full text article on
other devices

Access PDF of article on
other devices

Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals

Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission

We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?

In less than 10 words - we give you what no one does.

Vision of being the best

We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services

We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review

All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review

All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version

Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status

From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks

You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks

After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Most Favored Author program

Join this program and publish any number of articles free of charge for one to five years.

Favored Author program

One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program

Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence

We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...

We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

Edorium Journals: On Web

Browse Journals

CONNECT WITH US