Reminder of important clinical lesson

Clostridium septicum sepsis and its implicationsMuhammad Khalid,¹ Rajeka Lazarus,¹ Ian CJW Bowler,¹ Chris Darby²¹Department of Microbiology and Infectious Diseases, Oxford University Hospital, The John Radcliffe Hospital, Oxford, UK²Oxford Transplant Centre, Oxford University Hospital, Churchill Hospital, Oxford UK

Correspondence to Dr Rajeka Lazarus, dr_osama_khalid@hotmail.com, Muhammad.khalid@orh.nhs.uk

Summary

An elderly gentleman, who had 12 years earlier been successfully treated for colon cancer, presented with fever, rigours, right upper quadrant abdominal pain and tenderness. A CT of the abdomen revealed a colonic mass distal to the hepatic flexure with multiple gas locules and a walled off perforation. He underwent a right hemicolectomy. Histology confirmed multifocal colonic adenocarcinoma. His admission blood cultures grew *Clostridium septicum*. A week postoperatively he developed intermittent fevers and abdominal pain. Repeat CT revealed an abdominal collection adjacent to the new anastomosis, but more importantly, a sharply shouldered aneurysmal dilation of the infra-renal abdominal aorta. These findings prompted immediate surgical drainage of the collection, repair of the anastomotic leak, resection of the infected aortic aneurysm and replacement with a tube graft. This case highlights the clinical significance of *C septicum* bacteraemia: its association with occult colonic malignancy and with mycotic aneurysm formation. Clostridia isolated from blood cultures should not be dismissed as contaminants but fully identified to ensure appropriate patient management.

BACKGROUND

The case report highlights the association of *Clostridium septicum* bacteraemia with colonic malignancy and its propensity to cause fulminant mycotic aneurysms, which if left untreated have a very high mortality. It also illustrates the need for laboratories to fully identify Clostridia found in blood cultures, so their predictive value for disease can be understood and the patient managed accordingly.

CASE PRESENTATION

A 77-year-old gentleman with a history (12 years ago) of colon cancer, with complete resection, presented to the surgical unit with abdominal pain, fever and rigours. On admission he was febrile, tachycardic, with tenderness in the right upper quadrant and epigastrium on deep palpation. There was no rebound tenderness and bowel sounds were audible. Examination of other systems was unremarkable. The peripheral white blood cell count was $17 \times 10^9/L$, C reactive protein >160 mg/L, chest x-ray was unremarkable and a normal urine dipstick. CT of the abdomen revealed a colonic mass distal to the hepatic flexure with multiple gas locules and a walled off perforation. He underwent right hemi-colectomy. Histology confirmed multifocal colonic adenocarcinoma. His admission blood cultures grew *C septicum* (figure 1). A week postoperatively he was noticed to have a low-grade pyrexia, lower abdominal pain and rising inflammatory markers. Repeat CT (figure 2) scanning revealed a 7 cm $\times$ 3 cm central abdominal collection adjacent to the new anastomosis. More importantly, it also showed a sharply shouldered aneurysmal dilation of the infra-renal abdominal aorta with peri-aortic gas. In the light of this, review of the admission CT scan revealed small locules of gas within the aortic wall. These findings prompted immediate surgical drainage of the collection, repair of the anastomotic leak, resection of the infected aortic aneurysm and replacement with a tube graft. Culture of

the aortic wall grew *C septicum*. He made an excellent recovery.

DIFFERENTIAL DIAGNOSIS

- Biliary sepsis
- Bowel perforation
- Recurrence of malignancy

OUTCOME AND FOLLOW-UP

He made a full recovery and was discharged 4 weeks after admission. He is currently receiving lifelong oral antibiotic therapy to prevent recurrence of sepsis in the newly inserted aortic graft.

DISCUSSION

This case highlights the clinical significance of *C septicum* bacteraemia—its association with occult colonic

Figure 1 Gram stain of blood culture—*Clostridium septicum*.

Figure 2 CT scan of the abdomen—the arrow indicates gas within the wall of the abdominal aorta.

malignancy^{1–9} and secondary infective complications such as aortitis and mycotic aneurysm,^{9–12} arthritis,¹³ endocarditis¹⁴ and endophthalmitis.¹⁵ Thirty-one cases of mycotic aortic aneurysm infected by *C septicum* have been previously reported. Progression to aneurysm formation occurs within 1–3 weeks of infection with a 6-month mortality of 100% if left untreated.⁸ The pathophysiology of the association is not understood.

Learning points

- Clinicians caring for patients with *Clostridium septicum* bacteraemia should have a high index of suspicion for colonic cancer and infective arteritis, especially of the aorta.
- Laboratories should fully identify *Clostridia* in blood cultures, and not dismiss them as contaminants. Full identification can improve patient care because some members of the *Clostridia* family have specific disease associations.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Chew SS**, Lubowski DZ. *Clostridium septicum* and malignancy. *ANZ J Surg* 2001;**71**:647–9.
2. **Larson CM**, Bubrick MP, Jacobs DM, et al. Malignancy, mortality, and medicosurgical management of *Clostridium septicum* infection. *Surgery* 1995;**118**:592–7; discussion 597–8.
3. **Lorimer JW**, Eidus LB. Invasive *Clostridium septicum* infection in association with colorectal carcinoma. *Can J Surg* 1994;**37**:245–9.
4. **Kornbluth AA**, Danzig JB, Bernstein LH. *Clostridium septicum* infection and associated malignancy. Report of 2 Cases and Rev Literature Medicine (Baltimore) 1989;**68**:30–7.
5. **Mao E**, Clements A, Feller E. *Clostridium septicum* sepsis and colon carcinoma: report of 4 cases. *Case Rep Med* 2011;**2011**:248453.
6. **Moseley B**, Mwirigi NV, Bowen J. *Clostridium septicum* aortitis and cecal adenocarcinoma. *Case Report Med* 2010;**2010**:121728.
7. **Mirza NN**, McCloud JM, Cheetham MJ. *Clostridium septicum* sepsis and colorectal cancer—a reminder. *World J Surg Oncol* 2009;**7**:73.
8. **Takano H**, Taniguchi K, Kuki S, et al. Mycotic aneurysm of the infrarenal abdominal aorta infected by *Clostridium septicum*: a case report of surgical management and review of the literature. *J Vasc Surg* 2003;**38**:847–51.
9. **Liechti ME**, Schöb O, Kacel GM, et al. *Clostridium septicum* aortitis in a patient with colon carcinoma. *Eur J Clin Microbiol Infect Dis* 2003;**22**:632–4.
10. **Rucker CM**, Menias CO, Bhalla S, et al. *Clostridium septicum* infrarenal aortitis secondary to occult cecal adenocarcinoma. *AJR Am J Roentgenol* 2004;**183**:1316–18.
11. **Seder CW**, Kramer M, Long G, et al. *Clostridium septicum* aortitis: Report of two cases and review of the literature. *J Vasc Surg* 2009;**49**:1304–9.
12. **Krypciak S**, Baudry E, Louis N, et al. [Mycotic aortic aneurysm infected by *Clostridium septicum*: a case report and review of the literature—article in French]. *J Mal Vasc* 2011;**36**:355–63.
13. **Dylewski J**, Luterma L. Septic arthritis and *Clostridium septicum*: a clue to colon cancer. *Can Med Assoc J* 2010;**182**:1446–7.
14. **Ridgway EJ**, Grech ED. Clostridial endocarditis: report of a case caused by *Clostridium septicum* and review of the literature. *J Infect* 1993;**26**:309–13.
15. **Schickner DC**, Yarkoni A, Langer P, et al. Panophthalmitis due to *Clostridium septicum*. *Am J Ophthalmol* 2004;**137**:942–4.

This pdf has been created automatically from the final edited text and images.

Copyright 2012 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Khalid M, Lazarus R, Bowler ICJW, Darby C. *Clostridium septicum* sepsis and its implications. *BMJ Case Reports* 2012;10.1136/bcr-2012-006167, Published XXX

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow