Unusual association of diseases/symptoms

A complicated case of cholecystitis, listeriosis and HIV/AIDS

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Summary

A 37-year-old woman of Tanzanian origin presented with symptoms of cholecystitis, sepsis and oral candidiasis. Subsequent investigation found listeriosis and HIV infection. Effective use of the appropriate antibiotics and surgical management to remove the source of sepsis led to a good recovery from the acute illness. The patient was subsequently transferred to a tertiary centre for specialist care of her underlying chronic condition of HIV/AIDS. Her case demonstrates a previously unreported association of HIV, *Listeria* and cholecystitis.

BACKGROUND

This case is an excellent example of what first appeared to be a simple (yet serious) case of a common surgical condition having a complex underlying aetiology. It also elegantly demonstrates that simple routine examination as well as investigation of more subtle symptoms can lead to the unravelling of such complex cases and the institution of effective treatment. Efficient treatment involved several disciplines spanning the medicine–surgery spectrum and both secondary and tertiary care.

This case confirms a previously reported yet very rare association of listeriosis and cholecystitis and the more common yet still infrequent association of HIV and listeriosis. It also introduces a formerly unreported association of HIV, listeriosis and cholecystitis.

CASE PRESENTATION

A 37-year-old woman of Tanzanian origin presented to the accident and emergency department with abdominal pain, fever and two episodes of loose stools after 4 days of shaking and feeling generally unwell. The pain was of sudden onset and stabbing in nature, waking her from sleep with a severity of 10/10. It was located in the right upper quadrant and did not radiate. It was worsened by movement and inspiration.

Her medical history was unremarkable except for acne that was being treated with Roaccutane, which she had stopped taking when she first felt unwell.

She has two children who live in Tanzania, whom she last visited 3 years ago; she had no other recent travel. She was working as a healthcare assistant and living locally in a flat with friends. She does not drink or smoke.

On initial examination she was febrile (40.3°C), tachycardic (160 beats per minute) and hypotensive (109/70 mm Hg). Her oxygen saturation was well maintained and she was not tachypnoeic. Her abdomen was tender in the right hypochondrium and Murphy's sign was positive. Oral examination revealed white plaques. Respiratory and cardiovascular exams were otherwise unremarkable.

INVESTIGATIONS

Admitting blood tests found C reactive protein 340 mg/l, white cell count $7.6 \times 10^3/\text{mm}^3$, haemoglobin 9.7 g/dl and platelets $210 \times 10^3/\text{mm}^3$. Over 24 h her haemoglobin dropped to 8.1 and platelets to $106 \times 10^3/\text{mm}^3$. Liver function was mildly deranged: alkaline phosphatase 140 IU/l, alanine aminotransferase 64 IU/l and bilirubin 23 $\mu\text{mol/l}$. Coagulation was impaired with an international normalised ratio of 1.3.

Blood cultures grew *Listeria monocytogenes*. Throat swab cultured a heavy growth of *Candida albicans*.

HIV type 1 antibody was positive, HIV viral load (PCR, Abbott Laboratories Ltd, Berkshire, UK) was 123 9303 copies/ml and CD4 count was 84.

Ultrasound of the abdomen revealed gross cholecystitis with multiple medium sized stones and a thickened gall bladder wall (13 mm). There was no common bile duct or intrahepatic duct dilatation. There was hepatosplenomegaly. The pancreas and kidneys were normal, and no ascites or free fluid was seen.

CT of the abdomen confirmed the results of the ultrasound and did not reveal any collection that was amenable to CT-guided drainage. α -Human chorionic gonadotropin test was negative.

The diagnosis was *L. monocytogenes* septicaemia (listeriosis) and cholecystitis on a background of HIV infection. The gall bladder was considered to be the source of sepsis.

TREATMENT

Sepsis was initially treated with intravenous Tazocin 4.5 g three times a day, which was changed after 30 h of treatment following the blood culture results to a combination of intravenous amoxicillin 2 g four times a day (14 days), intravenous gentamicin 5 mg/kg/day (9 days) and oral metronidazole 400 mg three times a day (10 days). The patient was resuscitated with intravenous fluids and intravenous vitamin K 5 mg was given to normalise clotting.

Laparoscopic cholecystectomy performed 3 days after admission removed a distended, thick walled gall bladder that had some flimsy adhesions and free peritoneal fluid.

OUTCOME AND FOLLOW-UP

This woman made a good postoperative recovery with 14 days of intensive care unit/high dependency unit care. She was extubated on day 1 after her operation and was quickly alert and oriented. Her inflammatory markers rapidly normalised after surgery. Recovery was only complicated by a persistent acidosis and hyperchloraemia which corrected with supportive management.

Histology found a gall bladder specimen with a 6 mm stone in the lumen and wall thickness of 2–3 mm. The mucosa was irregular with focal superficial ulceration, chronic mucosal inflammation, muscle hyperplasia and Rokitansky–Aschoff sinus formation, all consistent with chronic cholecystitis and cholelithiasis.

Microbiological analysis of the gall bladder did not culture *L monocytogenes* from the sample.

Subsequent investigation for HIV associated infections confirmed cytomegalovirus (CMV) infection (CMV DNA PCR 797 copies/ml) and ophthalmology found possible early changes of CMV retinitis. Toxoplasma, hepatitis viruses and syphilis were negative.

Given her CD4 count of 84/mm³, the patient was treated with prophylactic cotrimoxazole 480 mg once daily and oral antiretroviral therapy consisting of tenofovir disoproxil 245 mg once daily, emtricitabine 200 mg once daily and efavirenz 600 mg once daily.

Having made a successful recovery from her cholecystitis and listeriosis, this woman was transferred to a tertiary referral centre for specialist care of her acquired immunodeficiency syndrome.

DISCUSSION

L monocytogenes cholecystitis has been reported in two previous cases from Austria in 1986/1987, in both of which the infection was localised to the gall bladder.¹ One earlier case was reported in 1986.²

HIV infection is well recognised as a factor predisposing to listeriosis. Guerra *et al*³ investigated all cases of listeriosis in HIV-infected individuals in Spain prior to 2004. They found 21 reported cases and concluded that "although *L monocytogenes* infection is infrequent in HIV-infected patients... clinicians should be alert to this possibility, since even the severe clinical forms have a favourable prognosis with proper treatment".

A PubMed search for HIV/cholecystitis/*Listeria* does not find any published articles linking the three conditions. However, HIV infection is associated with both cholangiopathy and acalculous cholecystitis in the late stages of

infection and when a low CD4 count has developed.⁴ In our case the findings of calculi, only mildly elevated liver function tests and a normal biliary tree do not support these diagnoses.

Recent research into the pathogenesis of *L monocytogenes* has begun to focus on the gastrointestinal phase of this food borne bacteria.⁵ In 2004 Hardy *et al* found good evidence of extracellular *L monocytogenes* replication in the gall bladder of mice.⁶ In our case, *L monocytogenes* could not be cultured from the excised gall bladder, which is not surprising as the patient had received 4 days of intravenous antibiotics by the time her gall bladder was removed and, additionally, molecular methods of detection were not employed.

This case report presents a previously unreported triad of HIV infection, listeriosis and cholecystitis. It is also an example of a serious condition with high mortality (20–30% in high risk individuals)⁷ being effectively treated with prompt and appropriate surgical and medical management.

Learning points

- ▶ A simple, common presentation such as cholecystitis may have a rare aetiology.
- ▶ Identification of co-morbidities using simple tests (in this case blood cultures) allows for effective, targeted treatment of serious conditions.
- ▶ Multidisciplinary management utilising diverse skill sets facilitated optimal treatment of this complex case.

Competing interests None.

Patient consent Obtained.

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