ISSN 2693-2326

Mycobacterium Fortuitum Cholangitis and Sepsis in an Immunocompetent Patient

International Journal of Infectious Diseases and Research Case Report

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Submitted : 28 Oct 2020 ; Published : 1 Dec 2020

Abstract

Mycobacterium fortuitum is an ubiquitous, environmental and opportunistic organism belonging to rapid growing mycobacteria (RGM), a distinctive subset of non-tuberculous mycobacteria.

It is mainly transmitted by direct inoculation and causes a wide spectrum of clinical syndromes, including skin, bone, soft tissue and disseminated infections, surgical wound infections, catheter-related sepsis and prosthetic device infections. Scientific literature abounds with cases occurred to cancer and immunosuppressed patients, especially in the presence of vascular devices. Hereby we report an event of Mycobacterium fortuitum sepsis and cholangitis, happened to an apparently immunocompetent individual, with no history of neoplasm, nor of immunosuppressive therapy, nor holding a central venous catheter (CVC). The man had previously undergone transitory biliary prosthesis positioning, followed by laparoscopic cholecystectomy; however, investigations on both the endoscopic and surgical equipment, as well as environmental samplings, ruled out a nosocomial infection.

After adequate antibiotic treatment, our patient recovered.

Introduction

Mycobacterium fortuitum is an ubiquitous environmental and opportunistic organism belonging to rapid growing mycobacteria (RGM), a distinctive subset of non-tuberculous mycobacteria [1, 3, 5].

It causes a wide spectrum of clinical presentations, including skin, bone, soft tissue and disseminated infections, lymphadenitis, surgical wound infections, catheter-related sepsis and prosthetic device infections [1, 4, 6].

We describe a case of *Mycobacterium fortuitum* sepsis and cholangitis, happened to an healthy individual, with no anamnestic data of neoplasm, nor of immunosuppressive therapy, nor holding vascular devices.

This seems to be an unusual event, since rarely reported in the scientific literature [2, 3, 8].

Case report

In March 2017, a 75-year-old Italian male was hospitalized because of an acute cholangitis due to choledocholithiasis, complicated by septic shock consequent to streptococcal infection, and acute renal failure. His past medical history consisted of a prostatectomy (because of prostatitc hypertrophy) and an intervention for cerebral aneurisma, both performed many years before.

After endoscopic retrograde cholangiopancreatography (ERCP) with biliary prosthesis positioning and sphincterotomy, in addition to antibiotic treatment and hydration, a significant improvement in the patient's condition was obtained, leading to his discharge.

During an ERCP check five weeks apart, the biliary prosthesis was extracted; for the contrastography documenting an enlargement of the common hepatic duct, besides some small choledochal stones, an extension of the sphincterotomy was made, and the calculations evacuated through endoscopic balloon and flower baskets.

In January 2018, a magnetic resonance cholangiopancreatography showed gallbladder and common bile duct microlithiasis, plus dilation of the latter. Therefore, on April 3, the man underwent laparoscopic cholecystectomy, with regular post-operative course.

On June 8, the patient was admitted to the Emergency Department of our hospital because of fever with chills, arisen the previous day. On physical examination, no abnormal findings.

Vital signs: heart rate 105 bpm, respiratory rate 24, blood pressure 90/60 mm Hg, body temperature 38.3 C°.

Chest and abdomen radiograph showed a subtle thickening in the left retrocardiac area, with ipsilateral pleural effusion, besides metal clips in the right hypochondrium.

Laboratory tests revealed these alterations: white blood cells (WBC) 10000/mmc, neutrophils (N) 9100/mmc, lymphocytes (L) 1500/mmc, platelets (PLT) 119000/mmc; serum glutamic pyruvic transaminase (SGPT) 188 U/L, gamma-glutamyl transpherase (GGT) 70 U/L, total bilirubin 7.0 mg/dl, direct bilirubin 5.2 mg/dl; glomerular filtration rate (GFR) 50 ml/min; c-reactive protein (CRP) 10.8 mg/dL [cut-off: < 0.5], procalcitonin 20.8 ng/mL [cut-off: < 0.5]

Computed tomography (CT) abdomen scan, documented dilation of intrahepatic and extrahepatic biliary tract.

After preparation of blood and urine cultures, the man was hospitalized with diagnosis of relapsing acute cholangitis, and given piperacillin/tazobactam plus adequate hydration.

A magnetic resonance cholangiopancreatography confirmed the picture of cholangitis, with dilation of biliary tract and multiple inflamed pseudodiverticula of the choledochus.

During the first days of the patient's stay, a marked improvement of clinical conditions was observed, but then fever and jaundice returned. While an ERCP tested normal, entry blood cultures revealed growth of Mycobacterium fortuitum (urine's were instead negative). Therefore, we changed the antibiotic regimen, switching to amikacin plus imipenem/cilastatin. This led to resolution of symptoms, besides normalization of CRP, procalcitonin and hepatobiliary function indices.

Among the investigations carried out by way of completion, HIV test, CT thorax scan and transthoracic echocardiography resulted negative.

Since no evidence of resistance was found on blood cultures antibiogram, after fourteen days amikacin and imipenem were replaced with oral trimethoprim/sulfamethoxazole and ciprofloxacin.

On July 5, the patient was discharged. Two weeks later, he underwent clinical and laboratory check-ups, which tested satisfactory. Antibiotic treatment was thus concluded within the following seven days.

Discussion

Mycobacterium fortuitum infections can involve various districts, such as skin, bones, soft tissue, lymph nodes, bloodstream, lungs and hurt, as well as affect surgical wounds of any site [1, 4, 6]. Most of the cases concern patients with underlying conditions such as cancer, diabetes mellitus, presence of invasive devices and use of immunosuppressive therapy [2, 3, 7, 8]. Our man was instead an apparently immunocompetent individual, with no history of neoplasm, nor of immunosuppressive therapy, nor holding a central venous catheter.

Lopez-Luis et al. described four RGM (rapid growing mycobacteria – see Abstract) bloodstream infections due to cholangitis associated with biliary devices [7], and our patient had in fact undergone biliary prosthesis positioning; nevertheless, this happened more than a year before, with the device remaining in place only for five weeks. Moreover, investigations on the procedural methods of managing endoscopic equipment, together with environmental samplings, ruled out a nosocomial infection. The same result was also obtained with the tests carried out on surgical and laparoscopic instrumentation used for 2018 cholecystectomy.

Deepening anamnestic revealed that the patient, officially retired, was still working as a plumber.

Therefore, a contact with water contaminated by Mycobacterium fortuitum, could have led to the choledochus infections, with the first one remained unrecognized because of ciprofloxacin, which was in fact part of the antibiotic regimen used to treat the 2017 episode.

Conclusion

Mycobacterium fortuitum infections usually occur to cancer and immunosuppressed patients, and/or in the presence of a central venous catheter. We instead faced an event of cholangitis and sepsis happened to a healthy individual, with no anamnestic data of neoplasm, immunosuppressive therapy, nor presence of vascular devices. The man had previously undergone transitory biliary prosthesis positioning (which stayed in place only for five weeks, more than a year before), followed by laparoscopic cholecystectomy; however, investigations on the endoscopic and laparoscopic equipment, as well as environmental samplings, ruled out a nosocomial infection.

After adequate antibiotic treatment, our patient recovered.

Acknowledgement

We would like to thank all colleagues and departments involved in the management of this case. Conflicts of interests: the authors declare that no competing interests exist.

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