Tuberculous Appendicitis with Tuberculous Peritonitis Due to Mycobacterium Bovis (A Case Report)

EL-SAYED SALEM, M.D. F.C.C.P.*; AYMAN SALEM, M.D. F.C.C.P.*; SOHEIL TAGER, M.Sc.** and AMAL ABD EL-RASHEED, M.D.***

The Departments of Chest, Faculty of Medicine, Cairo University*, Surgeon, Italian Hospital, Cairo** and Microbiology, Faculty of Medicine, Tanta University***

Abstract

Tuberculous appendicitis is a very rare condition. Tuberculous peritonitis is not uncommon. The association is, is thus worth reporting as in the current case, specially that it was proved by meticulous mycobacterial studies to be caused by M. bovis. The case was successfully managed both in the diagnostic and therapeutic parameters. The cause and effect relationship of the association the case is also discussed in the text.

Key Words: Tuberculous appendicitis — Tuberculous peritonitis due — Mycobacterium bovis.

Introduction

THAT tuberculosis can affect the appendix is quiet rare ill, but tuberculous peritonitis is not uncommon being mentioned in textbooks [2,3]. The association is thus seemingly rare, which has been encountered in the present case report. More important it has been proved by definite investigations in the present report to be due to Mycobacterium bovis infection, which is a zoonotic organism, affecting essentially domestic animals. It also affects human beings as well. The case was also successfully and properly managed and is thus worth reporting with an earnest trial to discuss their associations from the scientific academic point of view.

Case Report

A 39 years old male, working as a farmer, from Saft El-Laban, Giza sought medical advice in the private clinic of the senior author of the present communication in a rather moribund condition. He was transferred to the Italian Hospital in Cairo in January 2011. His main complaint was dyspnea, abdominal pain and fever. He gave a history of weight loss due to anorexia. He had marked night sweats, in spite of the winter season. He was identified as an old acquaintance of the clinic of the senior author, 4 years before. He was then, having right pleurisy with effusion, which was aspirated once; for diagnostic purpose and proved to be serous exudate of tuberculous etiology, whereby he received antituberculous therapy in the form of streptomycin, isonicotinic acid hydrazide (INH) and rifampicin, with tapering dose of corticosteroids. He was regular on this therapy only for two months until the fluid "dried"; according to his words. He thus stopped the therapy and did not figure for follow-up as he was “symptom free”, which he interpreted as "cure" in spite of medical advice. The present complaint started gradually since 4 months with a progressive course. His current clinical examination showed marked cachexia, temperature 38.5°C and pulse 92/min. His respiration rate was 31/min. His chest was clinically free. His abdomen however showed evidence of mild ascitis. It was generally tender, more marked in the right iliac region. His chest X-ray was unremarkable, apart from an obliterated right costophrenic angle.

Abdominal sonography confirmed the presence of ascitis with septations. CT did not add any additional findings. His CBC showed moderate leucocytosis (12100) with obvious lymphocytosis (31%). The ESR was 88/hour. The ascetic fluid was essentially serous, with a slight hemorrhagic tinge. Its glucose content was 40mgm/dl and amylase was 10U/L. The total protein in the fluid was 5.7gm/dl of which 2.6 were albumen. The serum/ascetic albumen gradient was 1.1. It cytology was essentially lymphocytic (80%). The microbiology including gram and ZN was negative. The tuberculin was highly positive (16mm enduration)
and hence it was decided to start antimicrobial therapy in the form of Rifampicin 600mgm, INH 400mgm, pyrazinamide 1500mgm and Ethambutol 1000mgm daily. During the next 4 days of observation, the medical sufferings of the patient were even more troubling especially concerning the toxemia and the pain and tenderness in the right iliac fossa, with increasing rigidity in the more painful area. Hence it was decided to do an exploratory laparotomy, which disclosed the ascites and a thickened and inflamed peritonitis with obvious adhesions and septations indicating an acute on top of chronic inflammation. The appendix was perforated and a plastor was observed. An appendicectomy was performed. Multiple biopsies were obtained. Omentectomy and debridement was also done. The abdomen was closed with drainage. Ciprofloxacin and Amikacin 500mg/12h, were added to his original therapy after stoppage of ethambutol. His postoperative was rather smooth, with marked symptomatic improvement. The drugs were well tolerated. No obvious side effects were observed. Biopsies from the peritoneum and appendix revealed numerous microscopic with numerous epithelial caseating granulomas (Figs. 1,2).

However no acid fast bacilli were detected:

The microbiologic study started by Ziel-Neelsen (ZN) stain which was repeated on 4 successive occasions, and proved negative. Cultures were performed on Lowenstein-Jenson medium from the ascetic fluid and the removed biopsies of the appendix and omentum after being homogenized and decontaminated. They were incubated at 37°C, for 8 weeks. The slopes were examined for macroscopic growth during the incubation period. When the growth became visible smears were prepared and stained by ZN stain which proved positive. The growth pattern and clinical morphology was characterized as M. Bovis; being dysgonic as described by Pagel, et al. [3]. This was further verified by negative nitrate reduction & niacin test. Nucleic acid recognition was also made by gene probe for DNA and polymerase chain reaction (PCR) [4] and DNA probe [5]. Gamma Interferon Release Assay (IGRA) [6,7] was, in the present blood sample, also performed by Quantiferon T.B. Gold test (QFT) and proved positive. Tuberculin skin test was repeated for the patient, using bovine tuberculin purified protein derivative (PPD) supplied from the Veterinary Medical Department in the Ministry of Agriculture and proved also positive after 72 hours. The enduration at the injection site was 22mm. All these data proved the etiology of the patient sufferings to be due to mycobacterium bovis. Thus it was decided to continue the antimycobacterial therapy (AMT) including also ciprofloxacin and amikacin. The patient was discharged after 12 days of smooth postoperative to continue regular follow-up period which included: Two months on AMT, which he received as an initial phase followed by a continuation phase of 8m INH and rifampicin. During the whole follow-up period which extended for 16m the patient was symptom free. His CBC & ESR returned to normal. There was no abnormality detected in his abdominal sonography apart from the previously reported adhesions & septations. Though rare, the case is eventuallly instructive; being successfully managed is thus worth reporting.

Discussion

Tuberculosis, being still prevailing, should continue to be looked upon as a clinical possibility, and as a radiologic probability, needing to be coined as a laboratory certainty [2]. In the presented case, in spite of being rare and rather atypical, the clinical suspicion came from the past-history of documented, serous exudative pleurisy with effusion, as being tuberculous in etiology with spectacular improvement on specific antimycobacterial therapy (AMT). but the patient, against medical advice,
did not complete the full course of AMT. He defaulted after 2 months and did not figure for regular follow-up. This lack of compliance was attributed to his faulty interpretation of an assumption of "cure", simply because of the disappearance of his symptoms. Hence the present situation can be postulated as being endogenous in origin, due to inadequate original initial therapy; but the lack of a microbiologic evidence of the mycobacterium bovis as the cause of the original initial pathology shakes such postulation. An exogenous source of infection; rising from the definite isolation of Mycobacterium bovis in the present episode, should be considered. This is further supported by the fact that the patient is a farmer from Saft El-Laban, being in close contact with cattle. His being from Saft El-Laban; as the name of the village implies, adds to this possibility: It is their habit to drink fresh non-pasteurized milk, without prior boiling!! Hence it can be therefore further postulated that the appendicular affection antedated the peritoneal affection. Isolated tuberculosis of the appendix is a rare entity III. It was reported by Singh, et al., (1987) [8] and Asbari, et al., (1993) [9]. Earlier reports, available to the authors, were in 1917, by Scott [10] and Drissen Zollinger (1935) [111]. Analogous reports referred to tuberculosis of the appendix as being isolated [1] and primary [9].

That the peritoneum can be affected in a case of tuberculous appendix is possibly due to perforation as reported by Dogru, et al., (2008) [12], but their diagnosis of the tuberculous etiology was not microbiologically proved. Their diagnosis was "strengthened" by the presence of high serum CA-125 levels; which is a high molecular weight glycoprotein which is mostly used as a marker for the diagnosis of gynecological and non-gynecological malignant disorders [12]. In that report, the high level of CA-125 was normalized after the third month of antituberculous therapy [13]. Such finding needed not to be looked for in our case as it was mycobacteriologic ally proved.

The perforation, in our case, was seemingly acute, on top of a chronic leak into the peritoneum as evidenced by a rather long abdominal complaint before the last acute episode and the demonstrated adhesions and the plastron observed in the perforated appendix during operative intervention. This is further documented by the presence of adhesions with septations on preoperative sonography. To postulate that the peritoneum affection; being the more common pathology in tuberculosis the appendicular affection is also feasible and can be explained by an antedating hematogenous phase of dissemination as another manifestation of serous membrane evidenced by the previous pleural affection [2,3], but that possibility is rather remote as the bovine etiology is unlikely to affect the peritoneum which has no direct continuation opening in the gut. Hence the more acceptable explanation in the present case is perforation rather than hematogenous dissemination.

It should be also noted that the lungs, in our case, did not show any active lesion and the florid tuberculous condition was exclusively abdominal. Moreover the mycobacterial studies were mietulous, and were conducted along standard authenticated lines [13,14]. It proved the causative organism to be Mycobacterium bovis. Its mode of infection is by ingestion. Anyway the management was successful both on the diagnostic and therapeutic levels in spite of the rarity and atypical presentation. Such situation was previously referred to by Uuger Bayramil (2005) [15] as a clinical dilemma. Hence the present case is reported as an addendum to a previous comprehensive review of a total 155 cases reported in the literature up to the year 2010 [16].

References