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Case Report

Primary Pelvic Nocardiosis Causing Pelvic Inflammatory Disease in an Immunocompetent Individual - An Unusual Case Presentation

Tapan Majumdar[1], Sibabrata Bhattacharya[2], Mousumi Paul[3]* and Jayanta Ray[4]

[1]*Professor and Head, Department of Microbiology, Agartala Government Medical College and GBP Hospital, Agartala, Tripura, India*

[2]*Associate Professor, Department of Microbiology, Agartala Government Medical College and GBP Hospital, Agartala, Tripura, India*

[3]*Medical Officer-MD Microbiology, Tripura Health Service, Agartala Government Medical College and GBP Hospital, Agartala, Tripura, India*

[4]*Professor, Department of Obstetrics and Gynecology, Agartala Government Medical College and GBP Hospital, Agartala, Tripura, India*

***Corresponding Author:** Mousumi Paul, Medical Officer-MD Microbiology, Tripura Health Service, Agartala Government Medical College and GBP Hospital, Agartala, Tripura, India.

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Abstract

We report the case of a 30-year-old immune-competent housewife who presented with fever and lower abdominal pain and was diagnosed with an adnexal collection. Initial evaluation was suggestive of tubercular pelvic inflammatory disease (PID). Subsequently, Nocardia species grown on culture of pus aspirated from the collection. She was treated with amikacin and cotrimoxazole and recovered completely over a period of 6 months. Primary abdominal nocardiosis is an unusual cause for PID and an important differential diagnosis for pelvic tuberculosis.

Keywords: *Pelvic Inflammatory Disease (PID); Pelvic Nocardiosis; Nocardia*

Introduction

Pelvic inflammatory disease (PID) is a underdiagnosed clinical condition, especially in developing countries like India. It is characterized by inflammation of female reproductive tract due to infection with microorganisms including *Neisseria gonorrhoeae*, *Trichomonas vaginalis, Chlamydia trachomatis*, *Escherichia coli* and anaerobic bacteria. *Mycobacterium tuberculosis* is one of the important causes of complicated PID which may leads to infertility. In a developing country like India, where the prevalence of tuberculosis is very high, Tubercular PID is a very common clinical problem [1].

PID has a tendency to spread to adjacent pelvic organs [2]. In addition to the risk of systemic dissemination of infection, PID can also produce local complications including infertility and ectopic pregnancy. WHO estimates that up to 40% of all cases of female infertility and 50% of all tubal pregnancies can be attributed to PID [3].

In the absence of adequate laboratory facilities, syndromic approach to PID plays an important practical tool for treating PID cases. One of the problem with this approach is the tendency to over diagnose pelvic tuberculosis-leads to an outcome of the high prevalence of female genito-urinary tuberculosis within the subcontinent [1].

Case Report

A 35 years old female patient presented with low-grade fever with evening rise since the past 1 month. She also complained of dull aching pain over the left lower part of her abdomen since the past 2 weeks. She denied significant weight loss or night sweats. There

was no alteration in bowel or bladder habits. Her menstrual cycles were regular. She had never been in contact with diagnosed cases of tuberculosis. There was no history of abdominal surgeries or intrauterine contraceptive usage in the past. She had never received steroid or immunosuppressant medication in any form and she denied any history of substance abuse. But she had history of two abortions in the past. Last abortion was 3 years ago, following which dilatation and curettage was done at a local health center. Other than this no significant past history was present.

At admission, the patient was haemodynamically stable. There was no significant lymphadenopathy. Abdominal palpation revealed tenderness in the left iliac fossa. There were no palpable masses per abdomen. Respiratory examination was within normal limit. On per vaginal examination, a soft bulging mass was palpated on pouch of douglas which corresponds to per rectal examination findings.

Investigation

Routine laboratory tests showed mild leukocytosis (total leucocyte count: 13,000 cells/µl) and an elevated erythrocyte sedimentation rate (ESR: 120 mm/h). Other tests including blood glucose (random blood glucose: 91 mg/dl), renal (serum creatinine 1.0 mg/dl) and liver function tests were within normal limit. Abdominal ultrasonography showed a left adnexal collection extending into the pouch of douglas. Pus was aspirated from the collection under ultrasonic guidance and the sample was send for laboratory investigations. Biochemical analysis revealed low glucose (2 mg/dl) and high protein (7.5 g/dl) with an elevated level of adenosine deaminase (205 U/l). Plenty of pus cells with long filamentous gram positive bacilli was found in Gram staining of pus sample (Figure 1). Although Ziehl-Neelsen staining (with 20% sulfuric acid) ruled out the presence of acid fast bacilli, pus culture was performed for *M. tuberculosis*. But modified Ziehl-Neelsen staining (1% sulfuric acid) revels presence of long filamentous weak acid fast bacilli (Figure 2). Mantoux tuberculin skin test was negative. Chest x-ray was done to ruled out pulmonary tubercular infection.

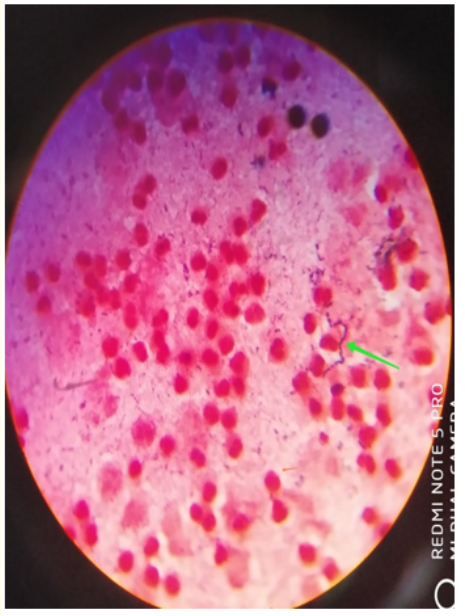

Figure 1: *Gram staining finding of pus sample showing gram positive long filamentous bacilli (1000X).*

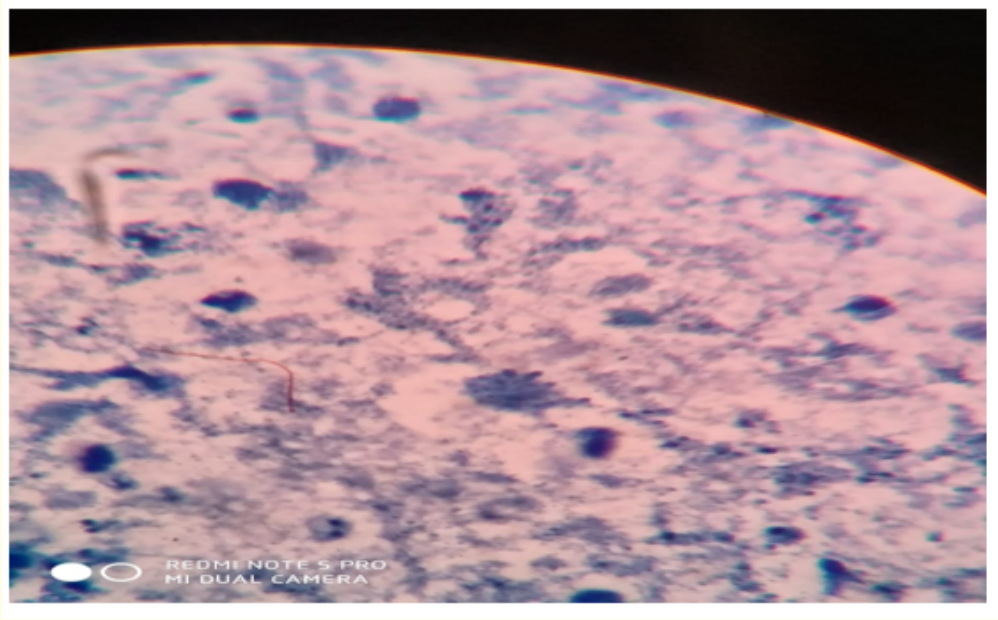

Figure 2: *Long filamentous weak acid fast bacilli in modified ZN staining (1% sulfuric acid) of pus sample.*

Subsequently aerobic culture of the aspirate on Blood agar, Sabouraud dextrose agar, LJ media yielded a growth of *Nocardia* species, which was sensitive to amikacin and cotrimoxazole.

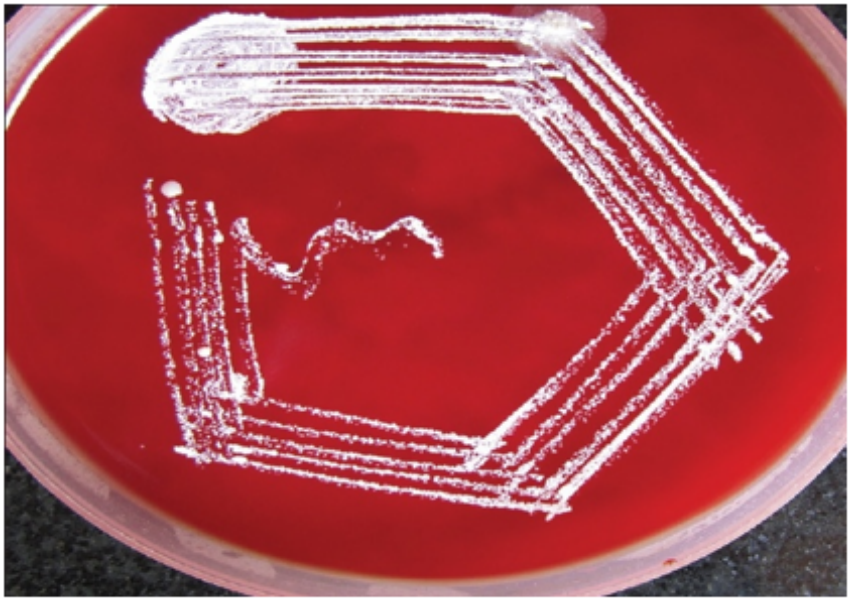

Figure 3: *Colony morphology of Nocardia in blood agar (nonhemolytic, white, rough colony).*

Figure 4: *Colony morphology of Nocardia in LJ media (yellowish, rough colony).*

Differentia diagnosis:

1. Primary pelvic nocardiosis
2. Tubercular PID
3. Pyogenic pelvic abscess.

Treatment

The patient was treated according to treatment protocol with amikacin (750 mg intravenous every 24h) for 14 days and cotrimoxazole (960 mg orally every 6h) for 6 months.

Follow-up

The patient recovered completely following 6 months treatment with prescribed antibiotics with full resolution of her symptoms.

Discussion

Nocardiosis is an infection caused by an aerobic filamentous bacteria of the genus *Nocardia*. It mainly involves lungs, skin and subcutaneous tissue and the central nervous system; it can spread from a primary pulmonary focus and can result in disseminated systemic infection via haematogenous spread [4]. Primary abdominal nocardiosis without evidence of pulmonary infection is very uncommon and limited to immunocompromised individuals. Any immune-compromised states of an individual like AIDS, long term corticosteroid therapy, use of immunosuppressive drugs, under treatment with dialysis and chronic medical illness constitute the major risk factors for

nocardiosis [5]. In contrast, our case is an rare presentation as a very little numbers of cases has been reported till date with primary pelvic nocardiosis in immunocompetent individuals.

Conclusion

This case highlights nocardiosis as an aetiological agent for PID. Although extremely unusual in immunocompetent individuals, still one should consider abdominal nocardiosis as a differential diagnosis for tubercular PID.

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