

Clostridium Paraputrificum –An Extraordinary Agent /of Necrotising Subcutaneous Ulcers in A Child With Protein-Energy Malnutrition

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Abstract: *Clostridium species are anaerobic Gram-positive rods that can cause a broad range of life-threatening infections in humans. Characterization of Clostridium sp. and their clinical disease spectrum are of utmost important to provide clinical cure particularly in debilitating patients. Clostridium paraputrificum is an infrequently isolated Clostridium species and its clinical significance has not been well described. Here we report a case of subcutaneous ulcer by C. paraputrificum in a child patient with protein-energy malnutrition.*

Keywords: *subcutaneous necrotising ulcers, Clostridium paraputrificum, protein-energy-malnutrition*

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I. Introduction

Anaerobic bacteria are a major commensals of the human body.[1] They can cause a broad range of opportunistic infections.[2] Clostridium sp. also do so. Among many Clostridium species, Clostridium paraputrificum is an uncommon organism and therefore its clinical significance has not well established.[3] We report a case of subcutaneous necrotising ulcers due to C. paraputrificum in a child patient with protein-energy-malnutrition (PEM). To the best of our knowledge, this is a first reported case of subcutaneous ulcer caused by Clostridium paraputrificum in India.

II. Case-Report-

A 8 years old male child was brought to paediatric out-patient department (OPD) in a rural tertiary health care centre in West-Bengal on January 2017 for severe multiple ulcers over the lower part of abdomen which were extending up to the medial aspect of thigh and groin. His parent complained that the ulcer was single at the starting in October 2016 and then it was gradually increasing in both number and severity. The child was admitted in paediatric ward for thorough investigations and treatment. The ulcer was chronic, non-healing, large, deep and opened [Fig-1]. Pus swab was collected from the base of the ulcer and sent for Microbiological investigations. Gram stain of the sample showed Gram positive bacilli with pus cells [Fig-2]. Acid-fast stain (using both 20% H₂SO₄ and 1% H₂SO₄) revealed non acid-fast structure. Both aerobic and anaerobic culture were processed. No growth appeared after 48hrs of aerobic incubation. Blood agar showed the haemolysis anaerobically [Fig-3]. Spreading, wrinkled, heaped up colonies were seen on Brain heart infusion agar (BHIA) after 48hrs of anaerobic incubation [Fig-4]. Gram stain of the colony smear also revealed Gram positive bacilli [Fig-5]. Inoculation in Robertson's cooked meat media (RCM) showed the spores. The spores are large, oval, terminal and bulging [Fig-6]. Repeat bacteriological culture revealed the similar findings. Both conventional and MBBact (BacT/ALERT-3D, Biomerieux) TB culture of sputum and pus were processed and subsequently no growth was found. But due to clinical deterioration antitubercular drugs (ATD) were started initially. Other biochemistry blood investigations showed normal values. Finally it was detected as Clostridium paraputrificum (86% probability) by Vitec-2 ANC ID card (Biomerieux) [Fig-7]. The patient was slowly responding to the treatment with clindamycin and metrogyl. Full follow up to the cure couldn't be possible as the parent took DORB from the hospital.

III. Discussion

Clostridium paraputrificum is an anaerobic, motile, spore forming gram-positive bacilli with atypical colonial morphology.[4] It is normal flora of gut and it is normally excreted through human faeces.[5] But the incidence as a pathogen are extremely rare.[6] The child is from a village of Burdwan District. He was brought up in unhygienic surroundings and suffering from malnutrition. Somehow the contamination has occurred from the stool. Clostridium sp. can cause a wide spectrum of severe infections in humans, including myonecrosis,

intraabdominal infections, and bacteremia.[7] but the ulcerative lesion caused by *Clostridium paraputrificum* is not reported in India till date.

IV. Conclusion

Although *C. Paraputrificum* is an uncommon anaerobe, it was isolated from few cases like bacteremia and myonecrosis. Here we reported an extraordinary case of ulcerative lesions with *C. Paraputrificum* in a child with PEM. However further studies are needed to elucidate the disease spectrum, pathogenesis, and risk factors for *C. paraputrificum*- related necrotising ulcerative infections.

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