



Microbiology

RARE DISEASE: A CASE OF OTOGENIC TETANUS AND THE IMPORTANCE OF MICROBIOLOGICAL DIAGNOSIS OF THE DISEASE IN PATIENTS PROGNOSIS.

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ABSTRACT This is case report of Orogenic tetanus in a 6 year old female who was admitted to Pediatric department with the chief complains of inability to open mouth and difficulty in swallowing since two days. Patient has discharge from left ear while right ear tympanic membrane was retracted. Patient's ear swabs were taken for Gram stain and both aerobic as well as anaerobic culture. Gram stain revealed Gram positive bacilli with terminal spores so provisional report was given as Gram positive bacilli with few showing terminal spores suggestive of *Clostridium tetani*. Aerobic culture showed no growth, while anaerobic culture showed growth which showed swarming and was later confirmed with Gram stain which showed Gram positive bacilli with terminal spores resembling "drum stick appearance". Patient was given anti tetanus serum along with metronidazole and diazepam. Patient's condition improved and patient was discharged on 10th day.

KEYWORDS :

INTRODUCTION

Orogenic tetanus is not an uncommon entity in developing countries due to lack of awareness about immunization, so even vaccine preventable diseases also are reported often. It causes deleterious effects on patient's health and may even lead to death if appropriate actions are not taken on time.

Tetanus is caused by toxin produced by *Clostridium tetani*, which is "Tetanospasmin" this toxin acts on the spinal cord and causes various clinical manifestation like lock jaw (Trismus), opisthotonus and eventually leads to autonomic nervous system disturbances like respiratory problems, coma and finally death of the patient. Puncture injuries are the most common method of entry of the bacilli, but can also be seen after fracture, burns, contaminated surgical wound and animal scratches.

CASE PRESENTATION

Six years old female patient was admitted to the Pediatric department in our hospital with chief complains of difficulty in mouth opening and difficulty in swallowing with history of fever and cough since 2 days. On clinical examination there was discharge from the left ear along with congestion of the tympanic membrane. Right ear examination showed retraction of tympanic membrane. There was no history of trauma with any foreign body. Patient had history of incomplete vaccination. Mother was enquired about the vaccines patient has received and she told that only BCG vaccine was given to the child. Call was made to Microbiology department. Four swabs were collected. One swab was used to make smear for Gram stain, two swabs were put in Robertson cooked meat broth (RCM) directly at bedside, while one swab was used for aerobic culture on blood agar and Mac Conkey agar.

On Gram stain, Gram positive bacilli were seen some showing round terminal spores. Preliminary diagnosis of *Clostridium tetani* was given and patient's treatment was immediately started. Patient was given anti tetanus serum intramuscularly and patient's condition improved within 48 hours. On aerobic culture on blood agar and Mac Conkey agar after overnight incubation at 37° C, no growth was seen. For confirmation smears were made after 48 hours of incubation at 37° C from Robertson's cooked meat broth(RCM) and then stained by Gram's stain, Gram positive bacilli with few bacilli bearing spherical terminal spores resembling "Drum stick appearance" were seen, along with proteolytic changes in Robertson's cooked meat broth(RCM). Both the bottles of RCM were heated for one hour at 60°C and then inoculated on blood agar as well as chocolate agar and incubated anaerobically using Gaspak. After 48 hours of incubation gray matte surface with irregular margins, translucent flat growth showing swarming was observed. Smears were made from growth on culture plate which showed Gram positive bacilli with "drum stick appearance". Confirmed diagnosis of *Clostridium tetani* was given. Based on

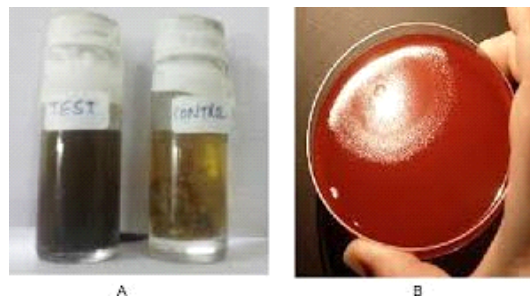
clinical signs and symptoms and our provisional report metronidazole and diazepam were already started to the patient.

One week later patient became stable and was able to open her mouth, walk by herself and also residual symptoms disappeared. Patient was discharged on 10th day with dose of tetanus toxoid and was advised to come back for second dose after 4 weeks.

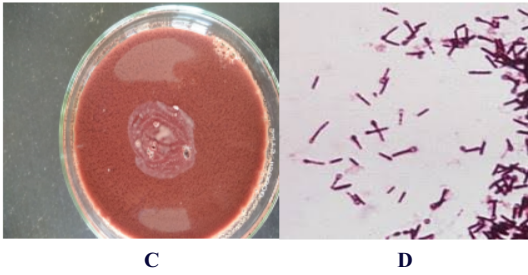
DISCUSSION

Tetanus is currently responsible for 1.2 million deaths in developing countries. Orogenic tetanus is a rare entity even though it has been reported long ago in the literature. First case of orogenic tetanus was reported in 1934 by Hyman et¹. Boyle et al² points out that two forms of orogenic tetanus are there. One resulting from trauma whereas in other form tetanus supervenes in pre-existing suppurative ear disease, in the second form clinical picture is less severe as compared to the first form. Vaccination is the only way to prevent infection by *Clostridium tetani*. Early diagnosis and treatment improves the prognosis³. Often delay in the treatment is due to confusing differential diagnosis. The reason for such cases in developing countries are associated with less awareness, low socioeconomic status, migratory populations and minority cultural status^{4,5}.

As per National immunization schedule active immunization against tetanus is done with administration of tetanus toxoid as trivalent vaccine DPT to be administered at 10, 14 weeks then booster at 16 to 24 months, and then 5-6 years of age. Later booster dose of tetanus toxoid is given at 10 and 16 years of age. In the above case patient had history of incomplete vaccination therefore it is important to increase awareness among community about the importance of vaccination to prevent vaccine preventable diseases. Also as administration of tetanus toxoid lead to improvement in patient's condition this signifies importance of tetanus toxoid. This case report signifies importance of both Clinical examination and Microbiology report's role in treatment of the patient.



A: Proteolytic Changes seen on Robertson's cooked meat broth
B: Swarming seen on blood agar



C: Swarming on chocolate agar

D: Gram stain showing Gram positive bacilli with terminal spores

REFERENCES

1. Hyman I, Bower AG. Otogenic tetanus: report of case. JAMA 1934;103:480
2. Boyle, I.T, brown, W.C. & Richardson, E. A "otogenic tetanus: report of a case with bacteriological findings. British medical council, 1965;vol2-5453:89.
3. Patel JC, Mehta BC. Tetanus study of 8,697 cases. Indian journal Med Sci 1999;53:393-401.
4. M Lemstra, CNeudorf, J Opondo, et al Disparity in childhood immunizations. Paediatr child health 2007;12(10):847-852
5. Briss PA, Rodewald LE, Hinman AR, et al. Reviews of evidence regarding interventions to improve vaccination coverage in children, adolescents and adults. The task force on community preventive services. Am J Prev Med 2000;18:97-140.