

Clinical Profile of Otogenic Tetanus in an Infectious Disease Hospital, Kolkata

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ABSTRACT

Introduction: Tetanus is a preventable disease caused by *Clostridium tetani*. Tetanospasmin, an exotoxin is responsible for its clinical manifestation. In developing countries like India it has great importance. Otogenic tetanus is mainly due to poor hygiene, lack of knowledge in health education and tetanus prophylaxis. **Materials & Methods:** During the year 2011 to 2017 total number of 523 tetanus cases were admitted at Infectious Disease & BG (ID&BG) Hospital, Kolkata and otogenic cases were studied from ward and case sheets. **Results:** Among total 523 cases otogenic tetanus cases were 61 (11.66%). Male Female ratio was 1:1. Duration of otogenic symptoms prior to presentation was 10 days to 1 year. Incubation period was not properly judged and average onset time 8 hours in death cases and 36 hours in survived cases. In survived cases 75.40% were below poverty level. According to Ablett grading system otogenic tetanus cases were found in Grade 1 =15(24.59%), Grade 2= 25(40.48%), Grade 3=9(14.75%), Grade 4= 12(19.67%). Otogenic findings were—otorrhoea 53(86.88%), chronic suppurative otitis media (CSOM) 23(37.70%), acute otitis 38(62.29%). Right ear discharge was more common. Out of 61 cases only 9(14.75%) were immunized completely, 44(72.13%) were immunized partially, 8(13.11%) were never immunized. Mortality was 19.67%(n=9) among otogenic tetanus cases. Pond bathing (n=38, 62.29%) and ear pricking (n=23, 37.70%) were the major precipitating factors. **Conclusion:** If no wound found in tetanus cases, proper ear examination to be done, particularly in children. Proper immunization and care of ear is important.

Key words: Otogenic tetanus, clinical presentation, complications

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I. Introduction

Clostridium tetani is a gram positive anaerobe, mostly found in soil and produce exotoxin, tetanospasmin which is responsible for clinical manifestations of tetanus.[1] Cholinesterase is inhibited by tetanospasmin, as a result at the motor end plate there is excess acetylcholine which causes sustained tonic muscle spasm. Clinically tetanus is manifested by muscle rigidity, spasm, lock jaw (trismus) with normal higher function.[2] Important environmental and social factors are—agriculture, animal husbandry, unhygienic habits and customs, ignorance.[3] Otogenic tetanus is mostly found in children and reflects the practice of bad aural hygiene, lack of consciousness about need of immunization. Parents are also responsible for that.[4]

II. Materials and Methods

We studied otogenic tetanus cases admitted during the year 2011 to 2017 at ID&BG Hospital, Kolkata. Immunization status, duration of otogenic symptoms, otogenic findings, onset time, severity, complications, progress were assessed. Educational background, socioeconomic status, unhygienic habits were also noted. Otogenic cases were those where no other wound or entry detected but ear pathology was present. All cases were treated with supportive care, immunoglobulin, muscle relaxant, antibiotic with aural toileting. Above or below poverty line (APL/BPL) was detected by the cards issued by Government authority.

III. Results

During seven years study (2011 to 2017) total number of tetanus patients admitted at ID&BG Hospital were 523, of them 61(11.66%) were detected to be of otogenic origin. Among otogenic cases Male to Female ratio was 1:1. 23(37.70%) were Hindu and 38(62.29%) cases were Muslim. Rural to Urban ratio was 3:1. 75.40% (n=46) were BPL category. Age of presentation ranges from 0 to 65 years. Age group wise incidence

was -0 to 5 years 44.26%(n=27), 5+ to 10 years 24.59%(n=15), 15+ to 20 years 11.47%(n=7), more than 20 years 19.67%(n=12).[Table 1] Most cases were seen in the month of June(26.22%,n=16), July and August(each 19.67%, n=12).[Table2] Duration of otorrhoea ranges from 10 days to 1 year. CSOM was responsible for 37.70% (n=23) and acute otitis for 62.29%(n=38) cases. Otorrhoea was found in 86.88% (n=53) cases – right ear 49.18%(n=30), left ear 37.70%(n=23), both ear 13.11%(n=8).[Table 3] Incubation period was failed ascertain but mean onset time(time between first symptom to first spasm) was 8 hours in death cases and 36 hours in survived cases. Onset of symptoms to specific treatment was 24 hours (mean). Severity was judged by Ablett classification and found—Grade 1=24.59% (n=15), Grade 2=40.48%(n=25), Grade 3= 14.75%(n=9), Grade 4=19.67%(n=12). Common presentations were trismus (100%), rigidity(100%), dysphagia(78.68%,n=48%), generalized muscle spasm(75.40%,n=46), cranial nerve involvement(11.47%,n=7). Average hospital stay was 3.66 days in death cases and 12 days in survived cases. Among 61 cases 12 patients (4 male, 8 female) were died (19.67%). Among total 523 tetanus cases 149 patients died(28.48%). Out of 61 otogenic tetanus cases 9(14.75%) were followed immunization schedule correctly, 44(72.13%) were partially immunized, 8(13.11%) were never immunized for tetanus. Among precipitating factors pond bathing was found in 62.29%(n=38) cases and ear pricking with dirty cloth or foreign objects like hair pin, feather to remove wax or ear discharge were found in 37.70%(n=23) cases. Mother’s educational status was asked for each patient and found 54.09%(n=33) never gone to school and 45.90%(n=28) just crossed the primary level.

IV. Discussions

During seven year study period at highest referral centre for Infectious Diseases at Kolkata (ID&BG Hospital) we came across 61 cases of otogenic tetanus out of total 523 tetanus cases (11.66%). Male Female ratio was 1:1, Rural Urban ratio was 3:1, Hindu Muslim ratio was

1:1.76, mortality was 19.67%. Mortality among total tetanus cases was 28.48%. In one study among total 620 patients, otogenic origin was found in 10.80% cases and mortality was 21% in all cases, 17% in otogenic cases.[5] J.C Patel, B.C.Meheta observed 22% cases of tetanus supervenes with otorrhoea.[6] Even with adequate treatment modalities ,mortality rate in tetanus varies from 15 to 50% but otogenic tetanus is much less serious.[7] Otogenic tetanus as a complication of otitis media has been found in 1.8% cases in one study.[8] In our study CSOM was found in 37.70% cases and acute otitis in 62.29% cases. Incidence is highest in 0 to 5 years age group(44.26%) and next age group is 5+ to 10 years(24.59%). In a study below 12 years age group, among 18 cases of otogenic tetanus , 16.69% was in the age group less than 2 years,

72.22% in the age group 2 to 6 years and 11.11% in 6 to 12 years.[9] Otogenic tetanus is the commonest mode of acquiring post neonatal tetanus and mainly of below 6 years age group. Cranial nerve involvements mostly seen in otogenic cases. In our study trismus(100%), rigidity (100%), dysphagia(78.68%), otorrhoea(86.88%), generalized muscle spasm(75.40%), cranial nerve involvement(11.47%) were common presentations. Immunization was complete in

14.75% cases, partial in 72.13% cases, never in 13.11% cases. In a Nigerian study trismus and otorrhoea were found in 100% cases, spasm in 90% cases, partial immunization in 84% cases and never immunization in 16% cases. Poverty, poor mother education, unhealthy practice, pond bathing are major responsible factors.[10]

V. Conclusion

Otogenic tetanus is an important problem in school going children. Proper health education, check up, care, immunization should be stressed in school health programme.

VI. Tables

Table 1

Otogenic tetanus : Age group distribution

Age Gr	0 to 5	5+ to 10	10+to15	15+to20	20+to50	50+to55	55+to60	60+to65
No of cases	27 (44.26%)	15 (24.59%)	0	7 (11.47%)	0	4 (6.55%)	5 (8.19%)	3 (4.91%)

Table 2

Otogenic tetanus : month wise distribution

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No of cases	6 (9.83%)	0	0	5 (8.19%)	7 (11.47%)	16 (26.22%)	12 (19.67%)	12 (19.67%)	7 (11.47%)	2 (3.27%)	2 (3.27%)	2 (3.27%)

Table 3

Otogenic tetanus : ear site involvement

Site of ear	No of cases	Percentage %
Bilateral	8	13.11%
Right ear	30	49.18%
Left ear	23	37.70%

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References

- [1]. Greding DN, Jhonson S, Clostridium infections. In Goldman L, Schafer AI eds, Goldman-Cecil's Medicine, 24 thed, Philadelphia, PA: Elsavier Saunders, 2011, chap 304
- [2]. Reddy P, Bleck TP, Clostridium tetani(Tetanus). In Mandell GL, Bennet JE, Dolan R eds.MandellDoglus and Benett's Principles and Practice of Infectious Diseases, 7th ed, Philadelphia, PA: Elsavier Saunders, 2009, chap 244
- [3]. Cretanovic B et al, Bull WHO, Suppl 1, 1978, vol 56, 28—29
- [4]. Ogunkeyede SA, Daniel A, Ogundoyin O, Pediatric Otogenic Tetanus : an evidence of poor immunization in Nigeria. The Pan African Medical Journal, 2017,26,177
- [5]. Jack L, Mahoney MD, Otogenic tetanus in Zaire, Laryngoscope,1980, 90, 7,1196-99
- [6]. Patel JC, Mehta BC, Tetanus : Study of 8697 cases, Indian Journal Of Medical Science,1999,53, 393-401
- [7]. Ananthanarayan and Paniker's Text Book Of Microbiology, 10th ed, 2017,UniversitiesPress
- [8]. Adeleke SI, Ogala WN, Akihionbare HA, Epidemiology of Otitis media in children attending pediatric out patient department of Ahamadu Bello University Teaching Hospital, Zaire, Nigeria. Annals of Nigerian Medicine, vol 3, no 1, 2009
- [9]. Tullu MS, Desmukh TC, Kamat JR, Experience of pediatric tetanus cases from Mumbai, Indian Pediatrics, 2000, vol 37, no 7, 765-771
- [10]. Akinbohun A, Ijaduola G, Otogenic tetanus among children in Ibadan, Nigeria, TheInternet Journal Of Otolaryngology, 2008, vol 10, no 2, 1-4

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